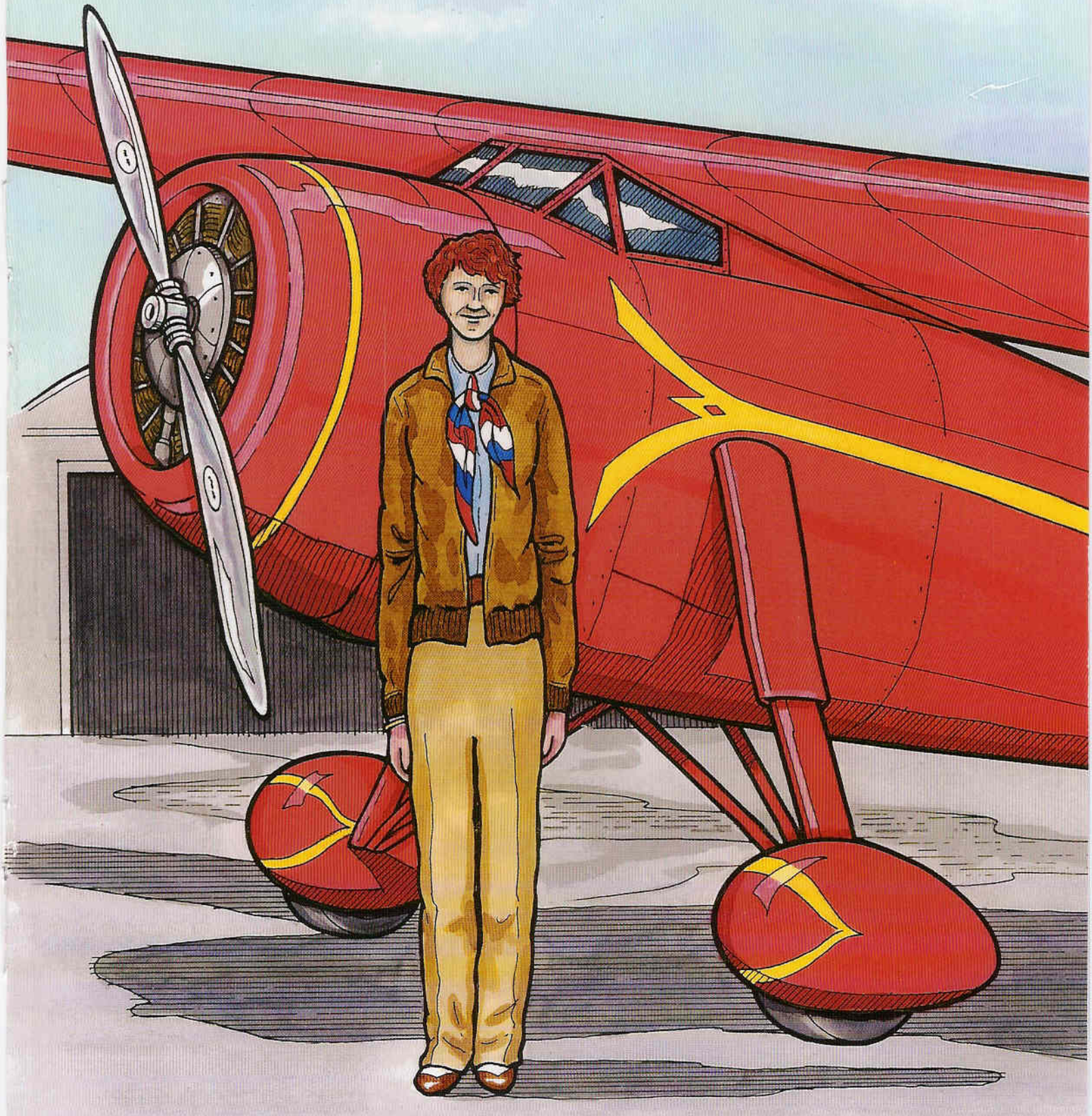
VISIT…

Dover Coloring Book

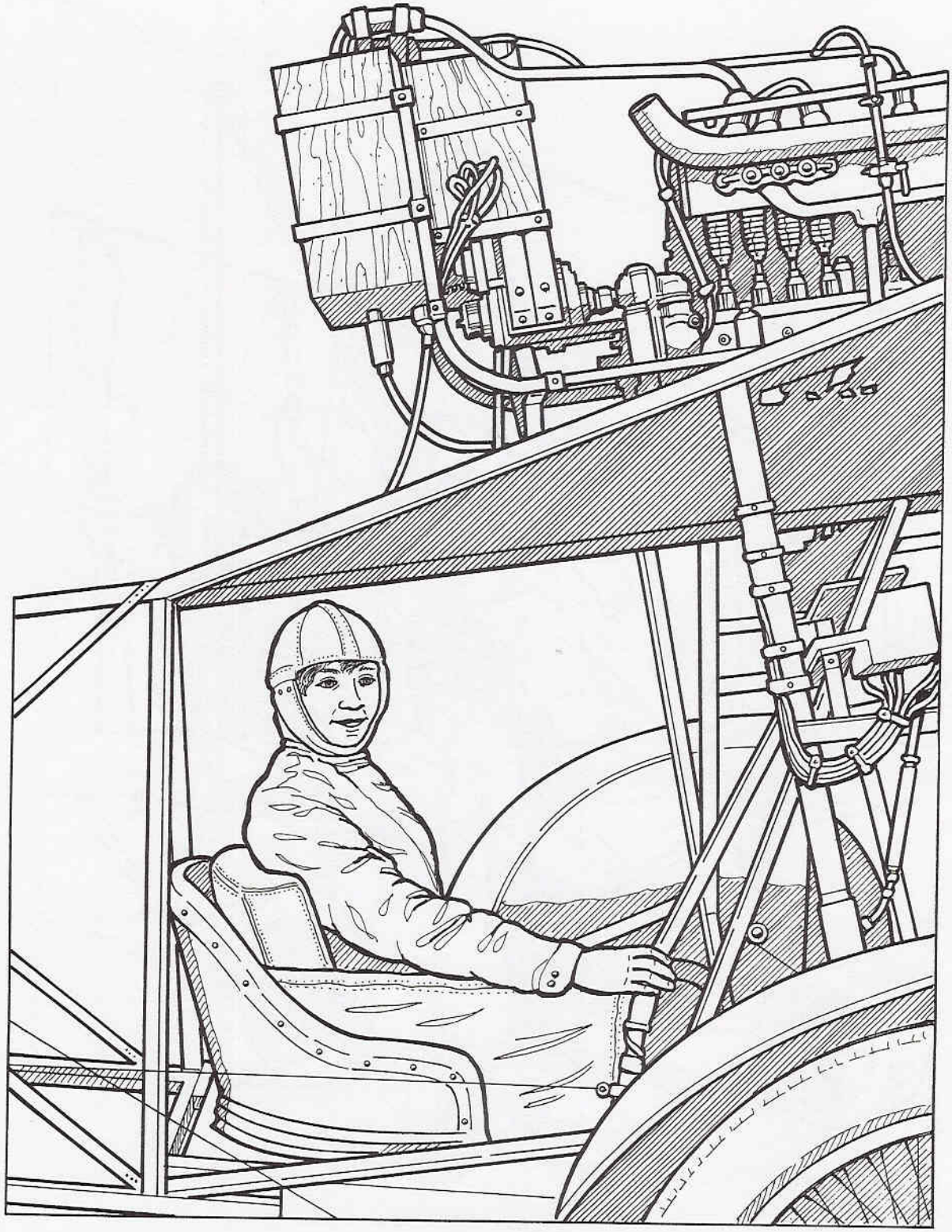
Famous Women Aviators

Bruce LaFontaine



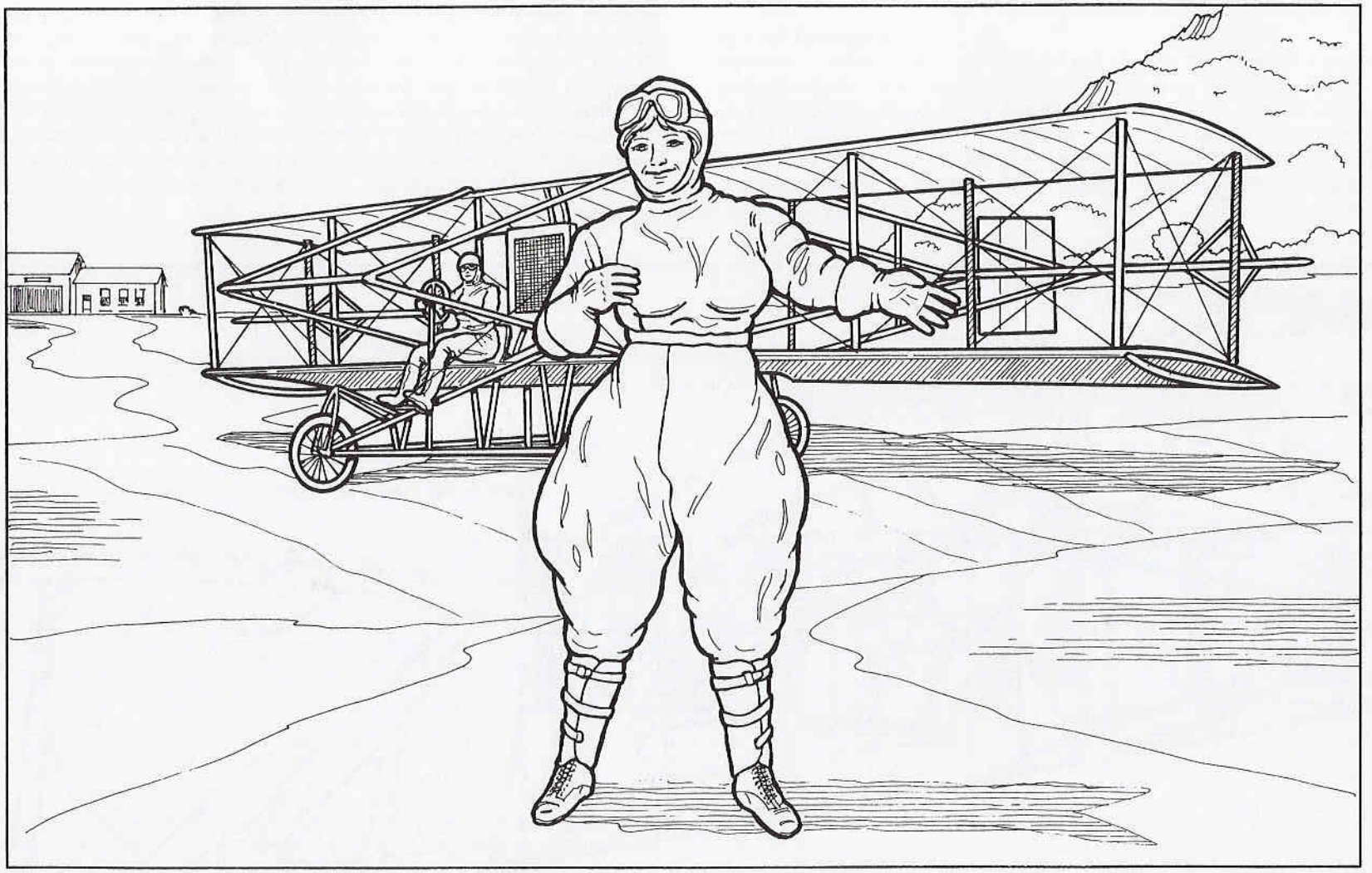
1. THÉRÈSE PELTIER, 1908

By 1908, there were a variety of rickety airplanes flying in both Europe and the United States. In France especially, the idea of powered flight had captured the imagination of the general public, spurred on by the success of the Wright brothers and their 1905 Flyer III airplane—the version capable of performing circles and figure-eights, as well as remaining airborne for more than thirty minutes at a time. Generally credited with being the first woman ever to ride in one of these early flying machines was French sculptress Thérèse Peltier. On July 8, 1908, while in Turin, Italy, Peltier was offered the opportunity to accompany pioneer aviator Léon Delagrange (who was also an accomplished sculptor) on a short hop over a distance of 650 feet at an altitude of twelve feet. This brief but memorable event marked the beginning of women's role in aviation history. Peltier went on to pilot a few solo flights in a Voisin biplane, but eventually abandoned her pursuit of a flying career.



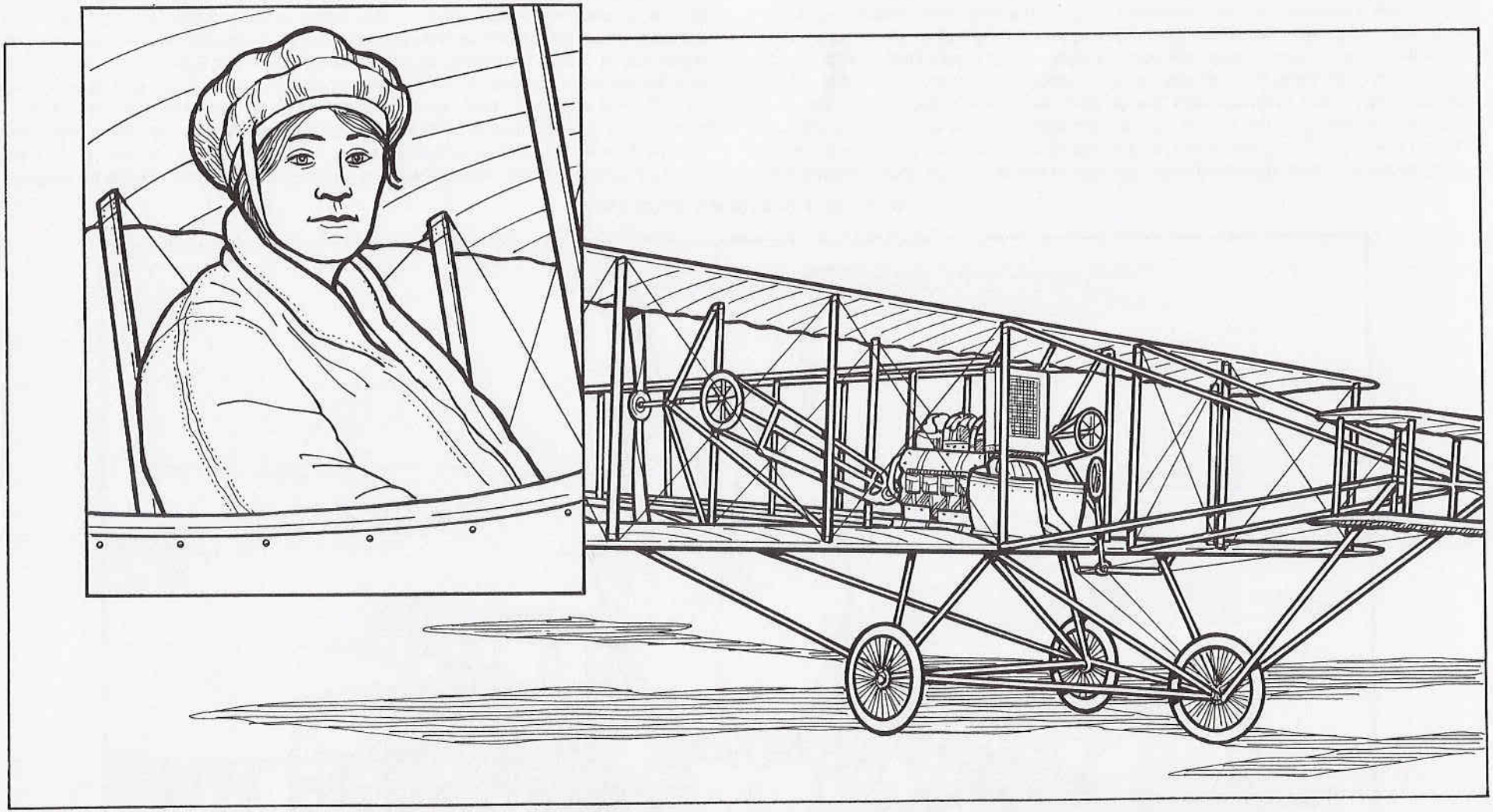
2. HÉLÈNE DUTRIEU, 1910

Europe's first well-known female flyer was Belgian Hélène Dutrieu—the "Girl Hawk" of aviation—whose previous experience was as a trick bicycle rider. She piloted her first airplane in April 1909 on a flight that lasted twenty minutes. In September of 1910, she made a record-breaking long-distance flight of twenty-eight miles, from the town of Ostend to Bruges, Belgium. After reaching Bruges, she flew around the city's historic church bell tower while the church bells rang and spectators thronged the streets, lifting her craft to an altitude of 1,300 feet, and in the process setting yet another new record for women pilots. She went on to compete in a 1911 air race in Florence, Italy, where she defeated fourteen male contestants to win the highly esteemed King's Cup. Later that same year, Dutrieu again made the record books by flying a distance of 158 miles nonstop in just under three hours. For this feat, she was awarded the prestigious Coupe Fémina. Despite her outstanding accomplishments, the media coverage of the time focused less on her skill and daring than on the fact that she chose not to wear a corset while flying, to allow her more freedom of movement.



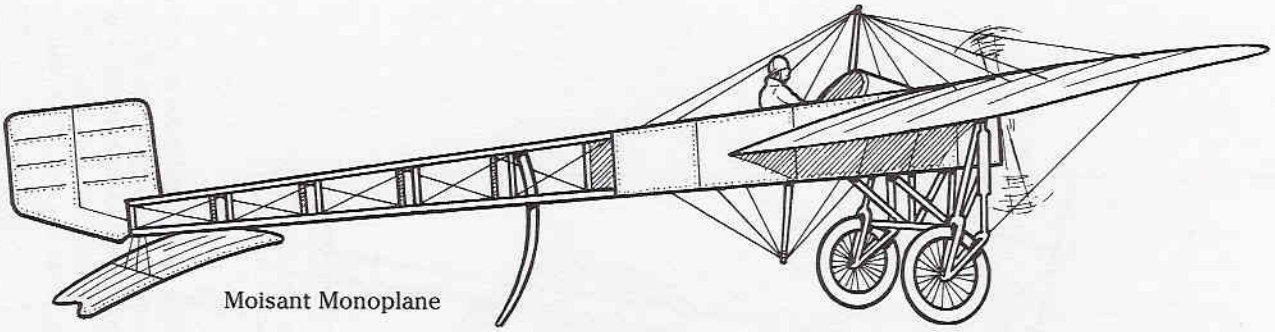
3. BLANCHE STUART SCOTT, 1910

The first American woman to "unofficially" pilot an airplane was Blanche Stuart Scott, born in Rochester, New York about 1890. A dauntless and spirited young woman, Scott learned to drive an automobile at age thirteen. In May of 1910, she began a record-breaking motor trip across the United States, completing her journey from New York City to San Francisco in sixty-seven days, a remarkable achievement considering there were only 218 miles of paved road in the United States. In September of 1910, Scott became the first (and only) female aviation student of famed flight pioneer Glenn Curtiss, whose flying academy was located at Hammondsport, New York. Reluctant at best to take on a female pupil, Curtiss forbade Scott from taking the plane off the ground, and even inserted a throttle block to prevent her from doing so. Nonetheless, while practicing taxi runs in a Curtiss pusher biplane, she defiantly lifted off, flew a short distance at an altitude of forty feet, and finally came to a smooth landing. Scott subsequently became a stunt pilot known as the "Tomboy of the Air." She flew under bridges as well as upside down, specializing in a hair-raising "death dive"—a perpendicular swoop from 4,000 to 200 feet—thrilling spectators at air shows until retiring from aviation in 1916 at the age of twenty-seven. Her flamboyant profession made her ripe for a career in Hollywood, where she worked as a film writer and radio commentator after World War I. Sometime later, she became a special consultant to the United States Air Force at the Wright Patterson Air Force Base Museum, a position she held until 1956.



4. BESSICA MEDLAR RAICHE, 1910

The first "officially" accredited female flyer in the United States was Bessica Medlar Raiche. As an adventurous adolescent girl, Raiche drove automobiles, participated in competitive shooting and swimming—traditionally male pastimes—and eventually went to France to study music. She returned to the United States with a French husband, François Raiche, and an enthusiasm for aviation fueled by the exploits of European woman pilots like Hélène Dutrieu. Settling in Mineola, Long Island, the couple built their own aircraft constructed from bamboo and silk, modeled after the Curtiss pusher biplane. By September 1910, Raiche had made a solo flight from the Hempstead Plains in her homemade flying machine. Shortly thereafter, she made a number of other notable flights for which she was awarded a gold-and-diamond medal from the Aeronautical Society of New York inscribed to her as the "First Woman Aviator of America." Raiche eventually relinquished her aviation career because of health problems, and moved to California. There she attended medical school, and ultimately became one of the nation's first female physicians specializing in obstetrics and gynecology.

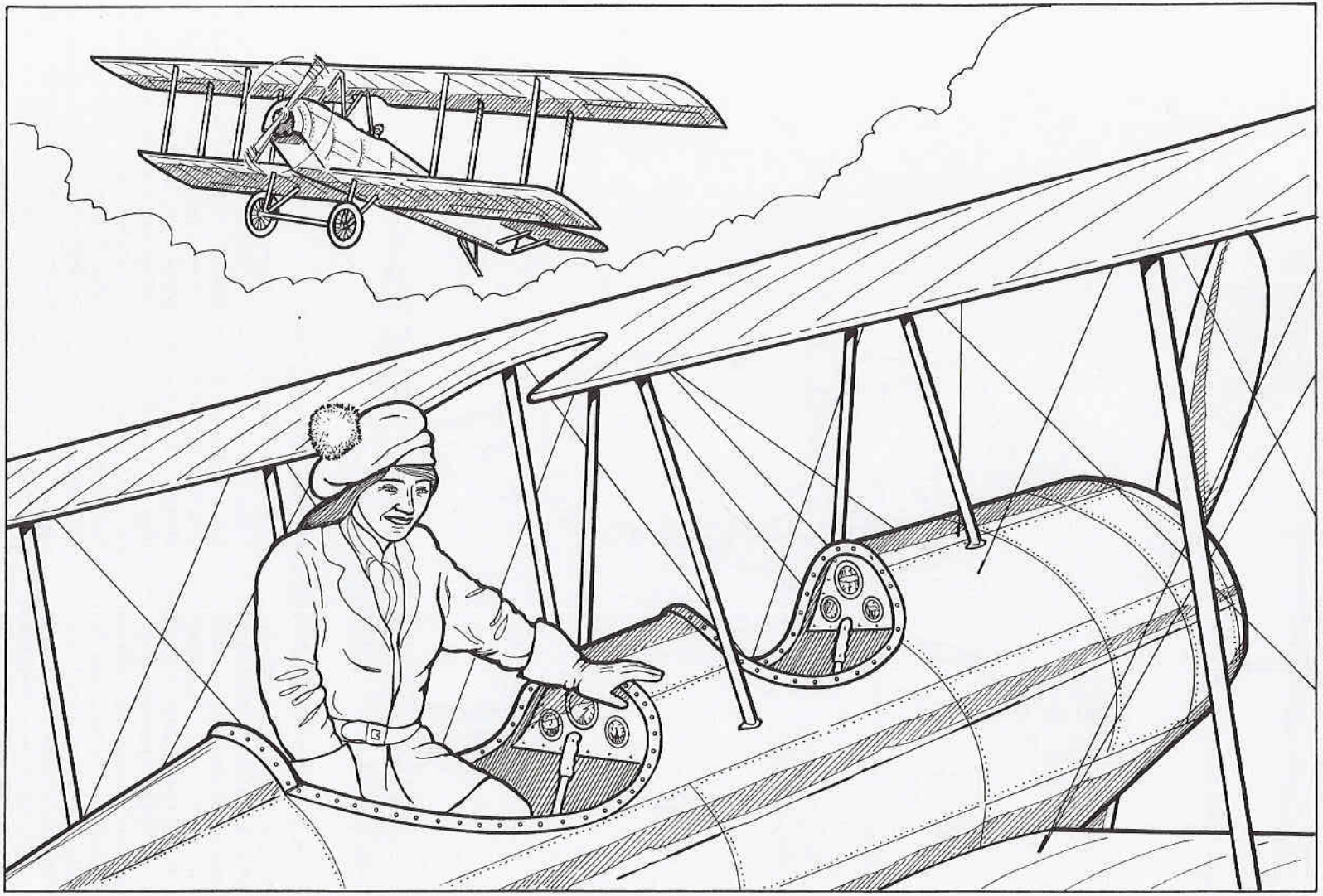


Moisant Monoplane

5. HARRIET QUIMBY AND MATILDE MOISANT, 1911

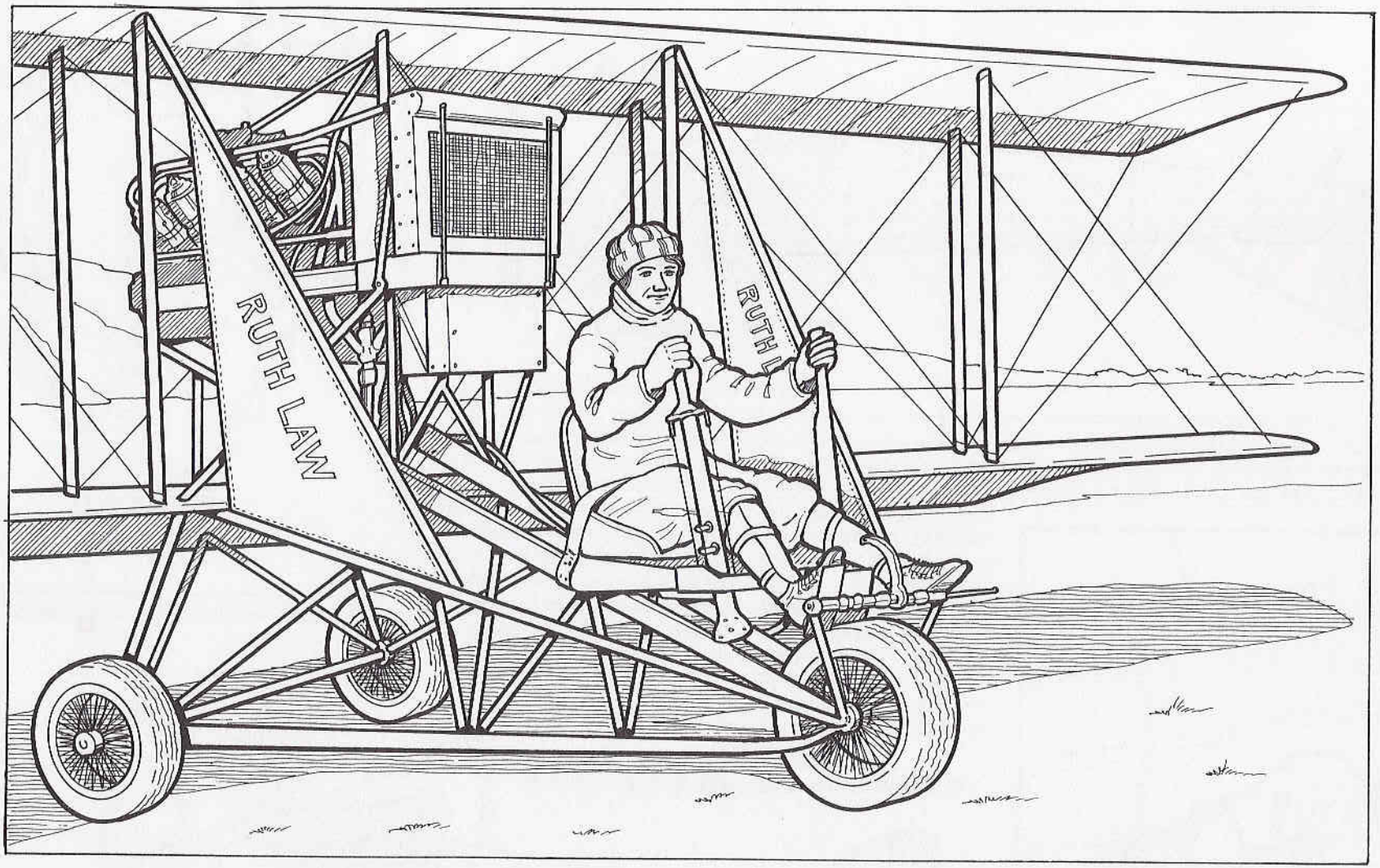
Friends Harriet Quimby and Matilde Moisant became the first and second licensed women pilots in the United States. While disguised as men because of social pressures, they received instruction at the flying school in Hempstead, Long Island, founded by Matilde's brother Alfred. After Quimby received her license on August 1, 1911, and Moisant received hers in mid-August 1911, they joined the Moisant International Aviators and barnstormed through the United States and Mexico giving flight demonstrations together. When Matilde made her exhibition debut at the Nassau Boulevard Aviation Meet in Garden City, Long Island in September of that same year, she broke the women's altitude record by reaching 1,200 feet. Considered an astonishing height at that time, Moisant won the Rodman–Wanamaker trophy for her efforts. After four serious crashes, her enthusiasm for aviation began to wane, and she retired from her brief but notable flying career in 1912. She is pictured (above right) attired in her snappy tweed wool flying suit and leather helmet.

Harriet Quimby (above left) had as distinguished a flying career as her good friend Matilde. A New York City drama critic who travelled in fashionable circles, and an outspoken advocate for female participation in the field of aviation, she achieved a prominent place in the record books by becoming the first woman to fly solo across the English Channel. Dressed in an eye-catching wool-lined purple satin flight suit she designed herself, Quimby flew a Blériot fifty-horsepower monoplane twenty-two miles across the open sea on the foggy morning of April 16, 1912. Only three months later, while participating in an air meet off the coast of Boston, Quimby was killed when her airplane went out of control and crashed into the ocean. Due to primitive and unreliable aircraft, such tragic accidents were all too common in the early days of aviation, making the spirit and daring of pioneer aviators like Harriet Quimby and Matilde Moisant all the more laudable.



6. STINSON SISTERS, 1912

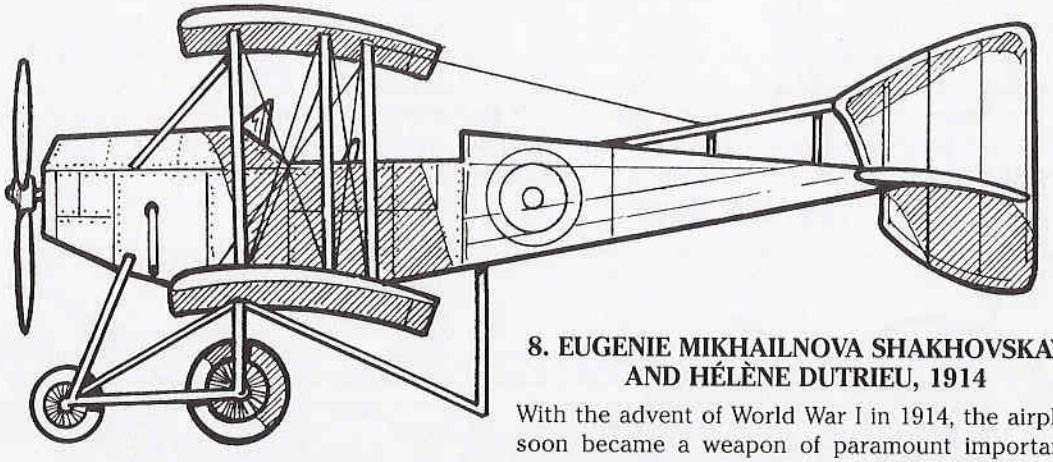
Katherine and Marjorie Stinson belonged to a prominent family of flyers known as the "Flying Stinsons," founders of the Stinson School of Aviation in San Antonio, Texas. Marjorie attained notoriety as the "Flying Schoolmarm," training about 100 Canadian cadets from Canada—where there was no flight training available—in preparation for World War I combat duty in the Royal Canadian Flying Corps. Her older sister Katherine (pictured above), who learned to fly at age sixteen, achieved even greater fame and popularity as a fearless exhibition flyer. She toured the United States beginning in 1913, wowing crowds with the spectacular multiple loops, rolls, and dives of her "aerobatic" stunt flying—and even devised a method of tracing letters in the sky with magnesium flares. According to one contemporary account, Katherine was credited with accomplishing eighty loops in succession. The first woman pilot to perform skywriting at night, she also became the first woman mail pilot in 1913 when she flew a short air delivery route for the community of Helena, Montana. Stinson toured the Far East in 1916–1917, giving stunt flying demonstrations in China and Japan, where she was greeted by thousands of cheering spectators at her air shows. There, where the role of women in society was even more severely restricted than in the West, this adventurous and skilled young woman garnered special admiration and was hailed as a female emancipator by Japanese women.



7. RUTH LAW, 1912

One of the most acclaimed female aviators of this period, whose achievements stirred the ambitions of many who were to follow, was Ruth Law. She received her pilot's license on November 12, 1912, and immediately began working as a commercial pilot and stunt flyer. In 1916, Ruth set the women's world altitude record by climbing to a height of 11,200 feet at Sheepshead Bay, New York, and again made the record books with a nonstop solo flight of 590 miles from Chicago to New York. She was the first woman to fly at night with her twenty-minute moonlit flight around Staten Island in November 1913. By 1917, her famous aerobatic flights would earn her as much as $9,000 a week; in the same year, she became the first airmail carrier for the Philippines.

During World War I, although not allowed in active combat, Law was the first woman to wear a noncommissioned officer's uniform as she toured the country, doing stunt flying for army and navy recruitment drives, as well as to raise funds for the Red Cross and Liberty Loan drives. After the war, she established "Ruth Law's Flying Circus" with her husband, a three-plane troupe that performed thrilling aerial exhibitions in the United States and the Far East. In 1922, her husband forced her to retire from her distinguished and colorful flying career. The announcement followed both the death of one of their stunt women during a performance, and Ruth's increasingly dangerous feats—like standing upright on the wing of a biplane while the pilot looped the loop three times. It was also becoming evident that as the airlines developed, there was not yet a role for women as commercial pilots.

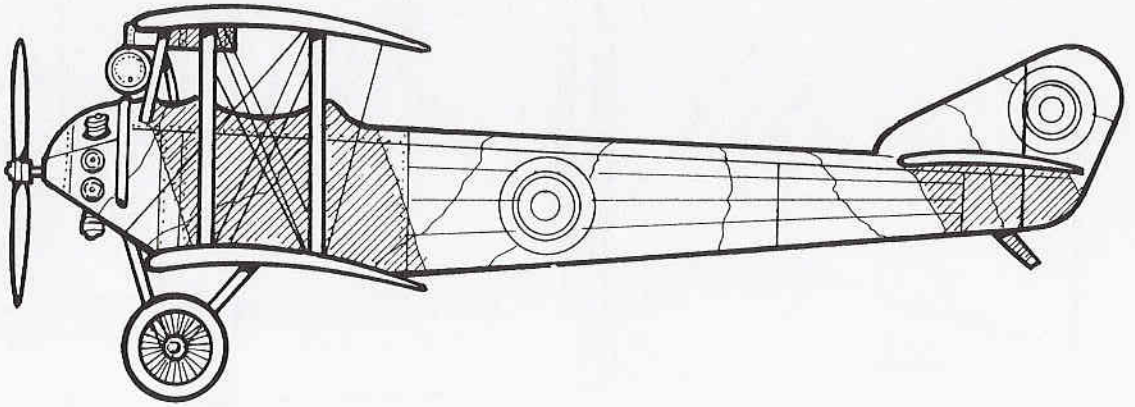


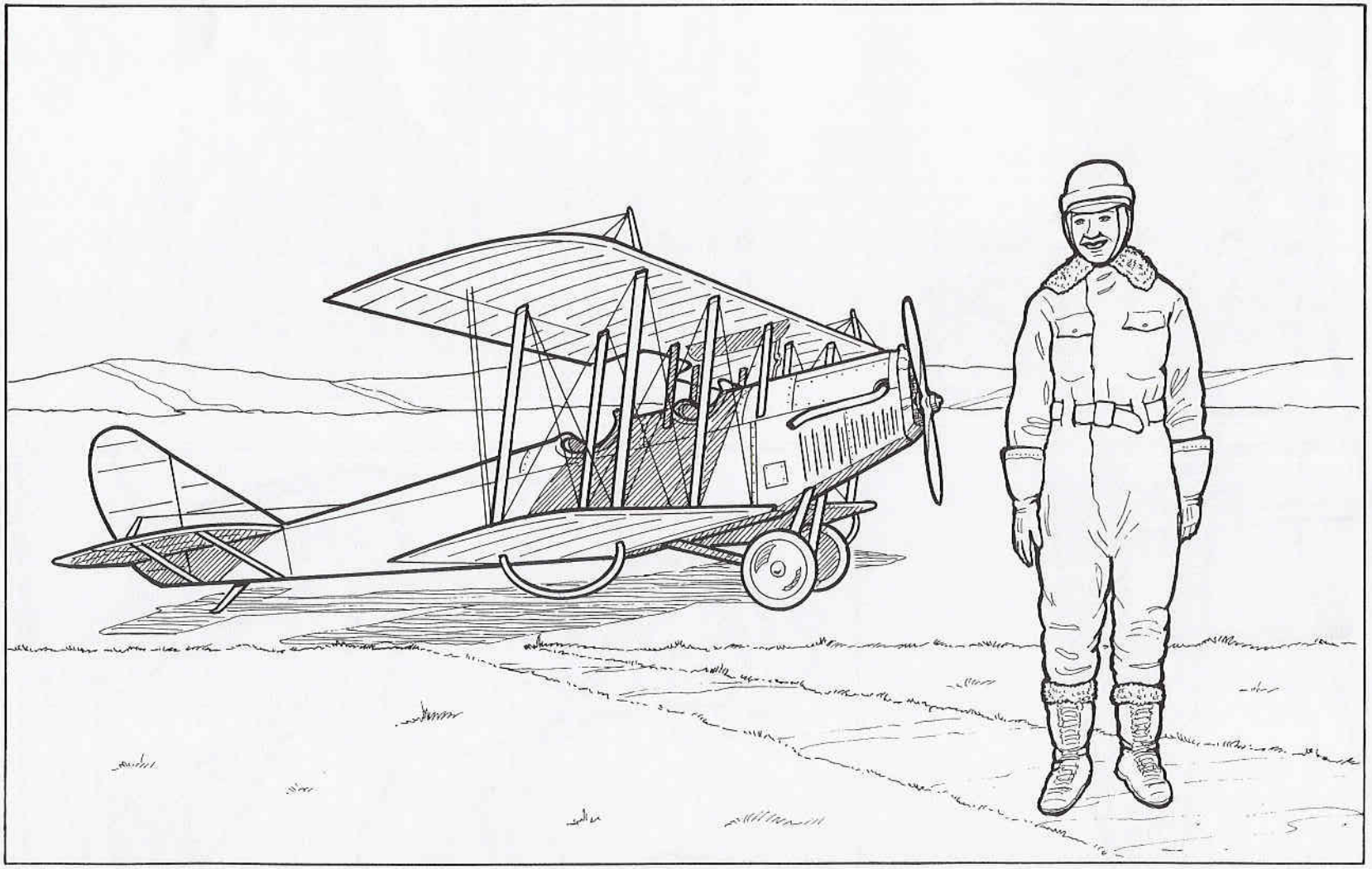
Hélène Dutrieu

8. EUGENIE MIKHAILNOVA SHAKHOVSKAYA AND HÉLÈNE DUTRIEU, 1914

With the advent of World War I in 1914, the airplane soon became a weapon of paramount importance, with the need for trained pilots rapidly accelerating from this war-driven requirement. Although female pilots were forbidden from flying in combat duty, they nevertheless served the war effort. Experienced women aviators such as Marjorie Stinson filled the valuable role of instructor for flying cadets. Even more directly involved were two skilled female pilots of the era, Belgian Hélène Dutrieu and Russian Princess Mikhailnova Shakhovskaya. Dutrieu was the only woman pilot to patrol Paris by air to seek out German aircraft. And Shakhovskaya was the first woman ever to become a military pilot when she few reconnaissance missions for Czar Nicholas II to gather information on enemy troop strength and deployments. These perilous assignments transpired in unarmed aircraft such as the French Breguet AG4 (top) and the Russian Anatra D5 (bottom). Had these fearless and determined women crashed and been captured, they doubtless would have been executed as spies.

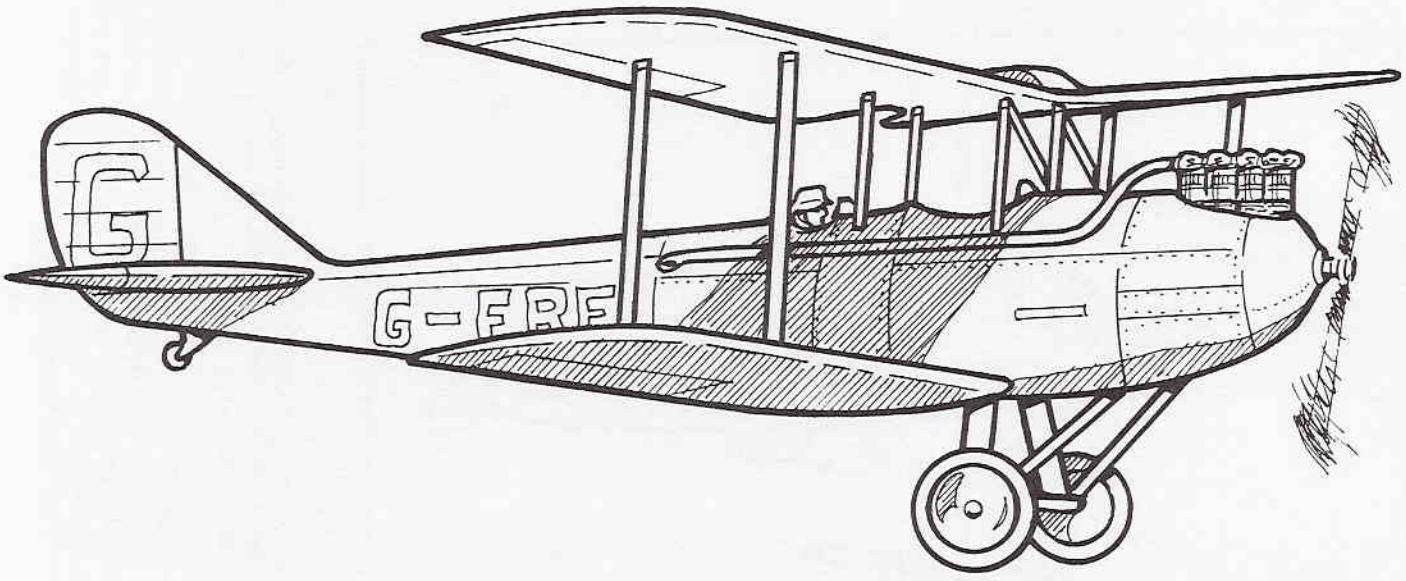
Eugenie Mikhailnova Shakhovskaya





9. BESSIE COLEMAN, 1921

Bessie Coleman was the first black woman to fly a plane, and the first African-American of either gender to receive an international pilot's license. Born in Texas in 1892 and one of thirteen children, Bessie's mother raised her to believe that she could achieve success through perseverance and hard work. In that early era of flight, America was buzzing with the "aeromania" that drew Bessie into its wake, and learning to fly became her special goal. She attended Langston Industrial College (now Langston University) in Oklahoma where she studied to be a teacher, but had to drop out after just one semester due to a lack of funds. Encouraged by a friend who informed her that there were better opportunities for flight instruction in Europe—where racial and gender barriers were less of an obstacle—Bessie worked and saved enough money to move to France. There she did indeed learn to fly, and finally obtained her pilot's license in 1921 from the Fédération Aéronautique Internationale (FAI). Returning to the United States a celebrity, Coleman became an air circus performer in her Curtiss JN-4 "Jenny" (pictured above), and was dubbed "Queen Bess." By her example, she demonstrated that an African-American woman could pilot an aircraft as skillfully as any other flyer. While just on the verge of realizing a long-standing dream of founding her own flying school for African-Americans, a tragic airplane accident cut short her life in 1926. A United States postal stamp was issued in 1995 in her honor as part of the Black Heritage series.

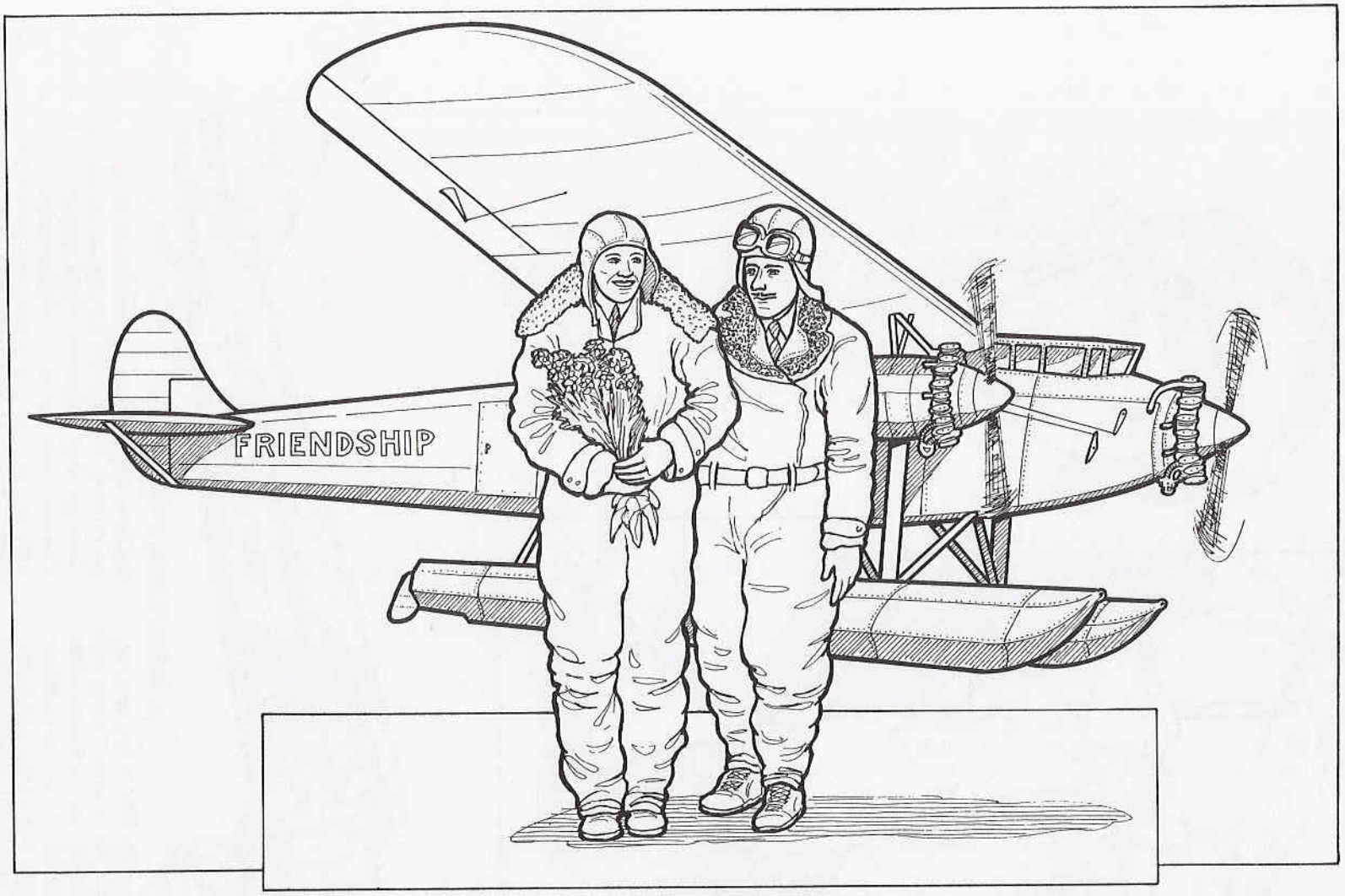


10. LADY MARY BAILEY, 1928

Englishwoman Lady Mary Bailey, daughter of an Irish peer, wife of a South African millionaire, and mother of five children, made world newspaper headlines in 1928 with her record-breaking long-distance flight from England to South Africa. The 8,000-mile journey, which spanned twenty-eight flying days, took her from London, down the African continent from Sudan, along Lake Victoria, to Tanganyika, and finally into Cape Town, South Africa. After a two-month stay in the Transvaal, Lady Bailey began a return flight to England. This route took her across the Congo, and over the forbidding Sahara Desert. Because of numerous mechanical difficulties with her de Havilland Gipsy Moth airplane (above), the total trip took several months. On her return to England, Lady Mary was enthusiastically hailed in the press for her daring solo accomplishment; and in 1929, she became the first woman to receive the coveted Britannia trophy for the year's most distinguished aerial performance.

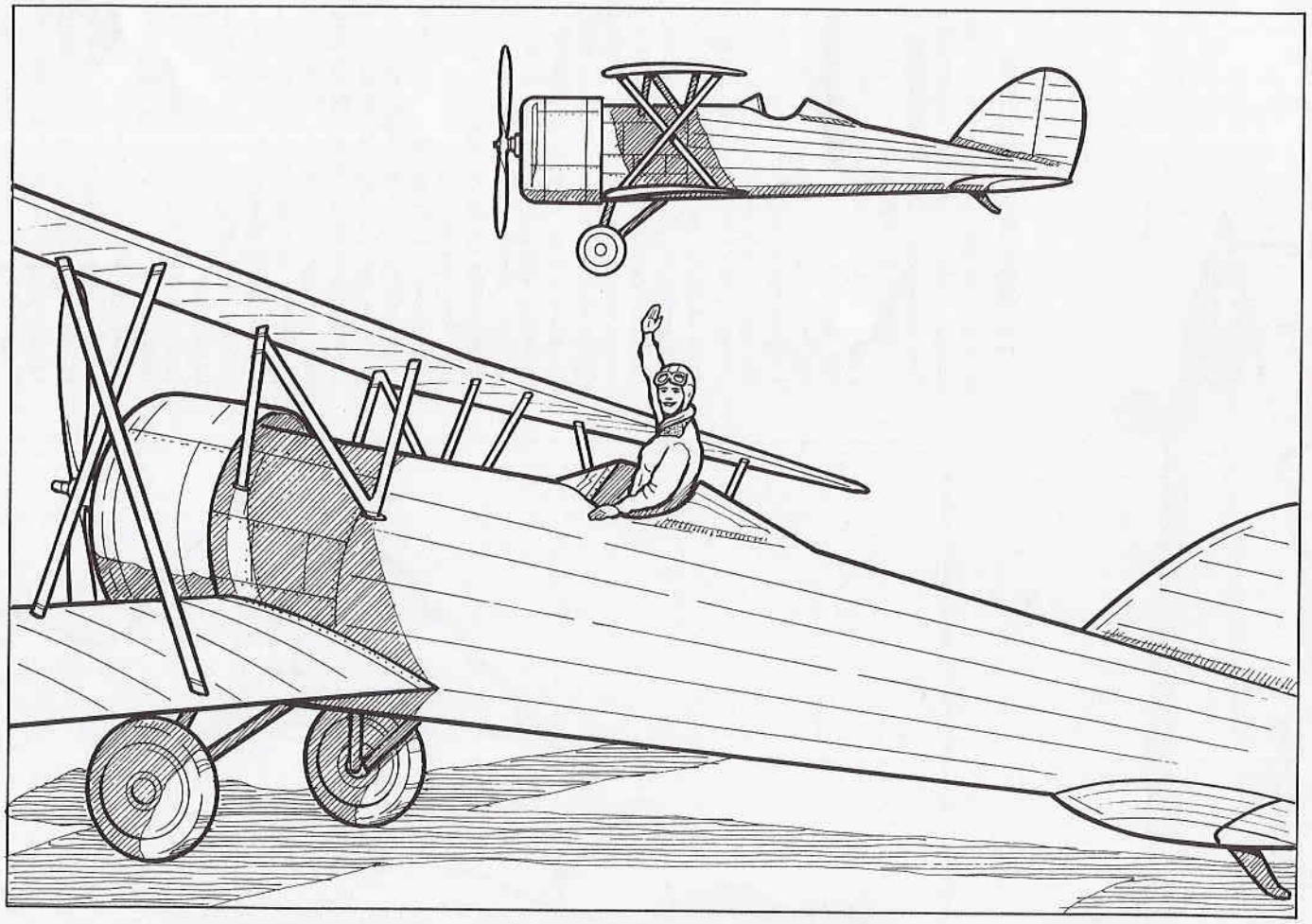
11. RUTH ELDER, 1927

The world was stunned and amazed in 1927 by the epic solo flight of Charles Lindbergh across the Atlantic Ocean, and female aviators of the time naturally vied with each other to become the first woman to equal his achievement. American flyer Ruth Elder's effort was almost successful. Using a reliable long-distance monoplane known as the Stinson Detroiter (above), Elder and Captain George Haldeman, her instructor and copilot, attempted the epic flight on October 11, 1927. Taking off from Roosevelt Field, Long Island, they chose a southern route to avoid the possibility of the aircraft's wings becoming encrusted with ice. However, after flying over 2,500 miles in thirty-six hours over the Atlantic, a broken oil line in their airplane—nicknamed "American Girl"—caused them to ditch at sea. The aircraft went down near the Azores, a mountainous island group 700 miles off the coast of Portugal. Fortunately, their plane was spotted by a Dutch freighter and the two were rescued. Ruth's aviation career lasted until 1929, when she demonstrated her considerable skill by placing fifth in the Women's Air Derby. In the same year she gave up flying, Elder moved to Hollywood where she became a successful actress in silent films.



12. AMELIA EARHART, 1928

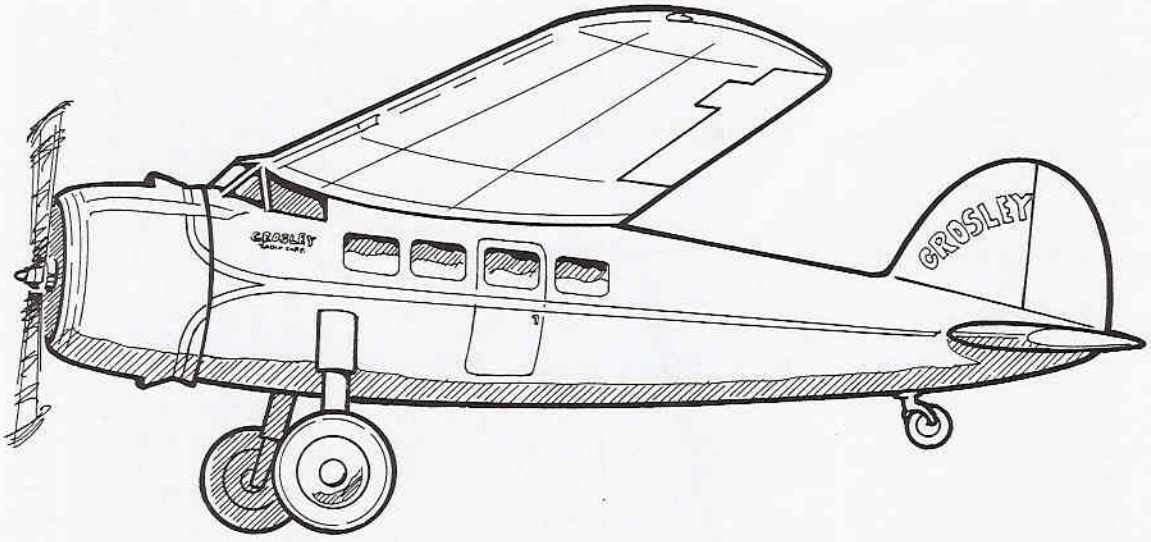
The remarkable flying career of Amelia Earhart began in 1921, when she completed her flying lessons and bought her own airplane, a Kinner Airster, for $2,000. Shortly thereafter, she set an unofficial altitude record of 14,000 feet for women pilots. Prior to her interest in aviation, Earhart voluntered for work as a nursing aide in Toronto, Canada during World War I, and attended Columbia University in 1919 with the intention of becoming a physician. However, her first ride in an airplane in 1920 at the age of twenty-three convinced her that flying was her one true passion. During most of the 1920s, Earhart honed her piloting skills while working at a variety of other jobs, most notably doing social work with immigrants at Boston's distinguished Denison House. Her first major aviation opportunity arrived in June 1928, when she was offered the chance to fly as a passenger on a transatlantic crossing. Along with two seasoned pilots, Wilmer Stultz (above) and mechanic Lou Gordon, Earhart took off on June 3, 1928 in a Fokker trimotor aircraft, the "Friendship" (above), which had bright red-orange fuselage—to make it especially visible in case of a crash—gold wings, and pontoon landing gear. The trio successfully made the crossing from Boston harbor to Burry Port, Wales in twenty hours and forty minutes. Although she did not pilot the aircraft and—as she herself modestly remarked—was no more help to her cohorts than "a sack of potatoes," Earhart was lionized as the first woman to cross the Atlantic by air. The legend of "AE" (as she liked to be called) had begun.



13. LOUISE THADEN AND "THE NINETY-NINES," 1929

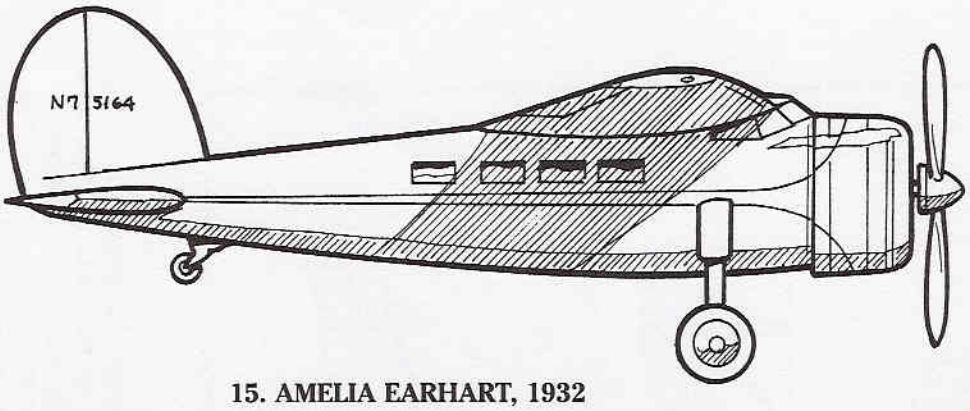
By 1929, the number of licensed women pilots had increased dramatically. In order to exhibit and promote female flyers, the first Women's Air Derby was organized as the opening attraction to the 1929 Air Races. Nicknamed the "Powder Puff Derby," the women's competition was a cross-country air race, from Santa Monica, California, to Cleveland, Ohio—a distance of 2,800 miles. Qualifications for the racers were a pilot's license and at least 100 hours of flying time, including twenty-five hours in cross-country dashes of at least forty miles. Entrants came from Europe, Australia, and the United States. The race took a little more than a week, with the pilots flying during daylight only and averaging around 300 miles per day. Flying was difficult and dangerous, with navigation by such primitive methods as dead reckoning from landmarks and road maps. Of the twenty women flyers who began the race, fifteen made it to the finish line in Cleveland. The winner was Louise Thaden in her Travel Air J5 biplane (above), who had already achieved fame in 1928 for holding simultaneously the women's world record for speed, altitude, and endurance flying in light planes. Amelia Earhart finished in third place after Ruth Elder.

From this Women's Air Derby—which Amelia Earhart dubbed "the event that started concerted activity among women flyers"—the seeds were sown for the first professional and social entity to support and encourage women in aviation. The new association first met informally at Curtiss Field in Valley Stream, Long Island in November 1929. With a total of ninety-nine founding members—all licensed female pilots—Earhart suggested that the group be called permanently the Ninety-Nines. In 1931, Amelia Earhart, whose efforts did much to establish and popularize the group, was voted its first president. Over the years, the Ninety-Nines has endeavored to promote the role of women in aviation, and the group now boasts more than 7,000 members in nine countries.



14. RUTH NICHOLS, 1930

With the increasing number of women aviators gaining public recognition, the newspapers of the 1930s coined a new term to describe them—"aviatrix," a feminization of the word "aviator." One aviatrix of this era challenged Amelia Earhart for prominence in the field: her name was Ruth Nichols, and she had been flying since 1919 when she first went aloft in an open-cockpit plane at an air show in Atlantic City, New Jersey. In 1923, Nichols became the first female pilot licensed to fly seaplanes and flying boats. During her long career, she was rated to pilot an astounding variety of aircraft, including dirigibles, gliders, autogyros (an early type of helicopter), monoplanes, biplanes, triplanes, twin- and four-engined transports, and supersonic jets. Flying in a Lockheed Vega (above), Ruth captured the world record for women aviators in altitude (28,743 feet), speed (210 mph), and nonstop distance (Oakland, California, to Louisville, Kentucky, almost 2,000 miles). In June 1931, Nichols attempted a nonstop solo flight across the Atlantic. While attempting to refuel in New Brunswick, Canada, an unlucky accident ended her effort to beat her friend and rival Amelia Earhart in the race to be the first woman pilot to match Lindbergh's achievement. She survived the crash, and among her many accomplishments went on to copilot the first seaplane to transport mail out of New York, was the founder of *Sportsman Pilot* magazine, and was one of the first women to attain an upper echelon position at a large aviation company.

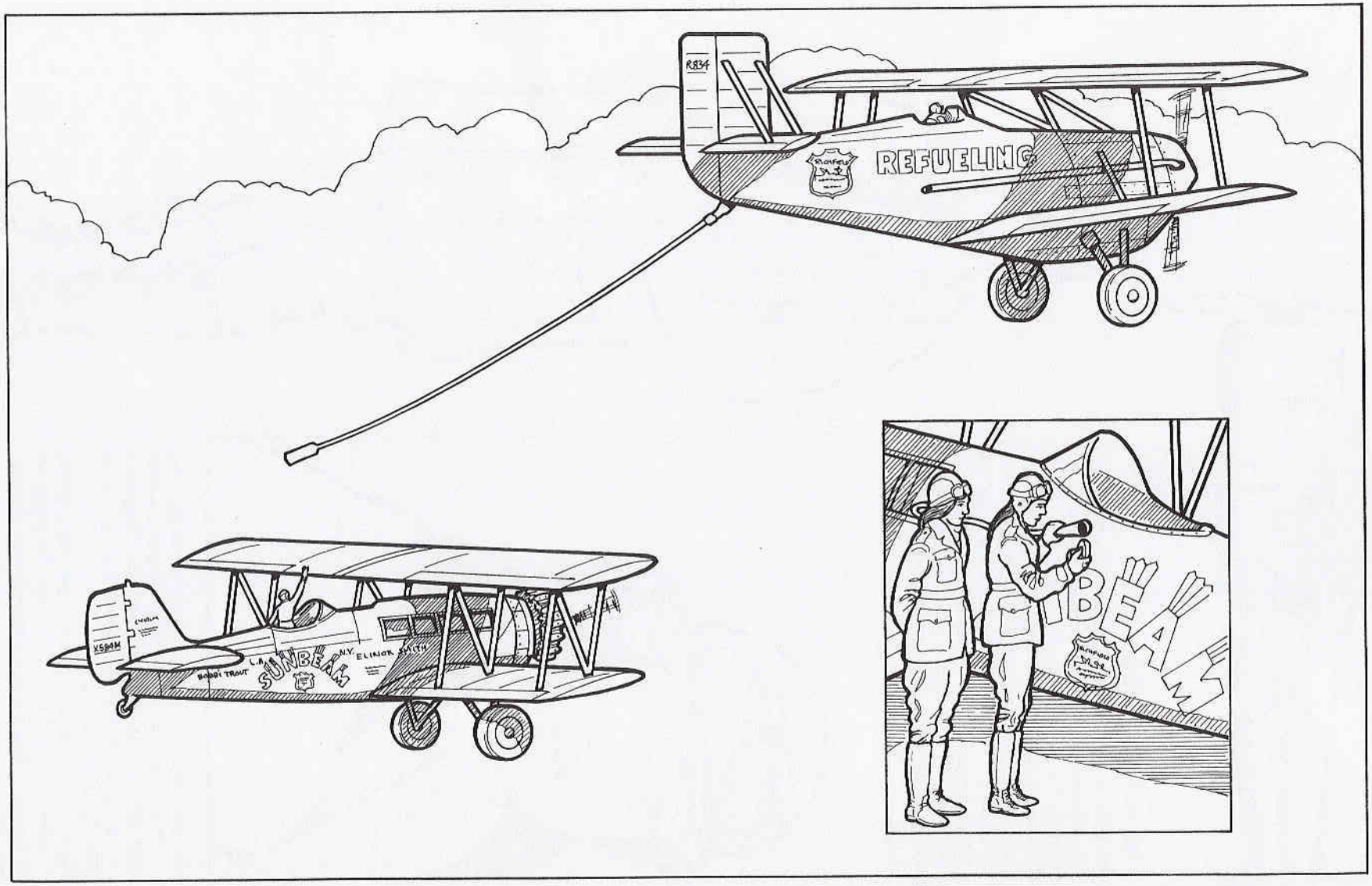


15. AMELIA EARHART, 1932

America's favorite aviatrix achieved her greatest fame in 1932. On May 20 of that year, she took off from Harbor Grace, Newfoundland, Canada, flying solo in her single-engine Lockheed Vega (shown above), bound for Europe. After fifteen hours, eighteen minutes in the air—the fastest crossing on record—Amelia touched down in a pasture near Londonderry, Ireland, terrifying the local cows. With this flight she attained the same pinnacle of success for women aviators that Lindbergh had for male flyers. Worldwide acclaim followed, and she was honored by massive crowds in a New York City

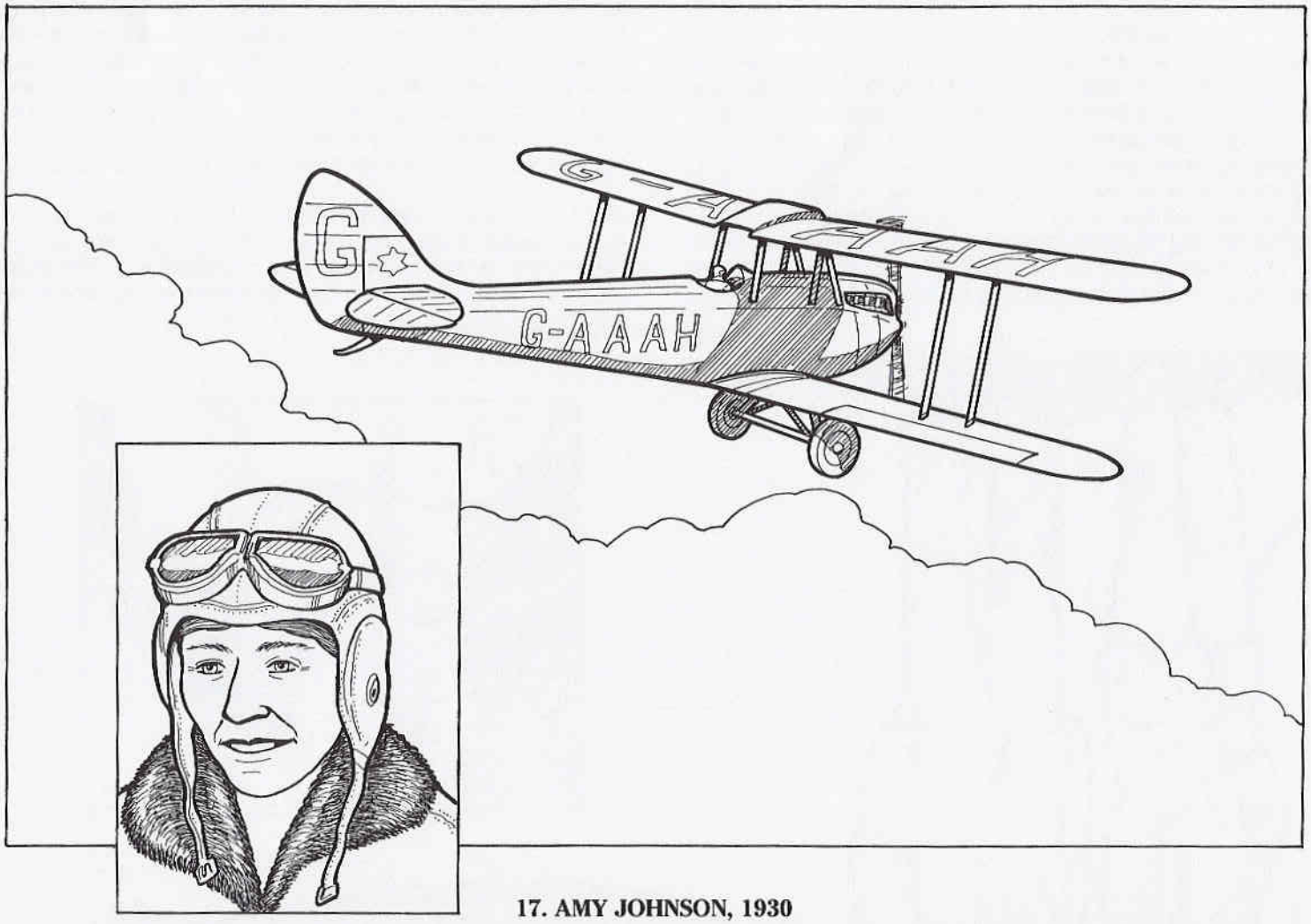
ticker-tape parade, much like the one that hailed Lindbergh a hero five years earlier. Other major accolades followed when Earhart received a special gold medal from the National Geographic Society presented to her by President Herbert Hoover, and the Distinguished Flying Cross from Congress.

Despite having scaled the heights of fame and glory, further challenges and notoreity awaited Earhart in 1932. On August 24, again piloting the fast and long-ranged Lockheed Vega, she set a new long-distance record for women aviators by flying nonstop from Los Angeles, California, to Newark, New Jersey in just over nineteen hours.



16. BOBBI TROUT AND ELINOR SMITH, 1929

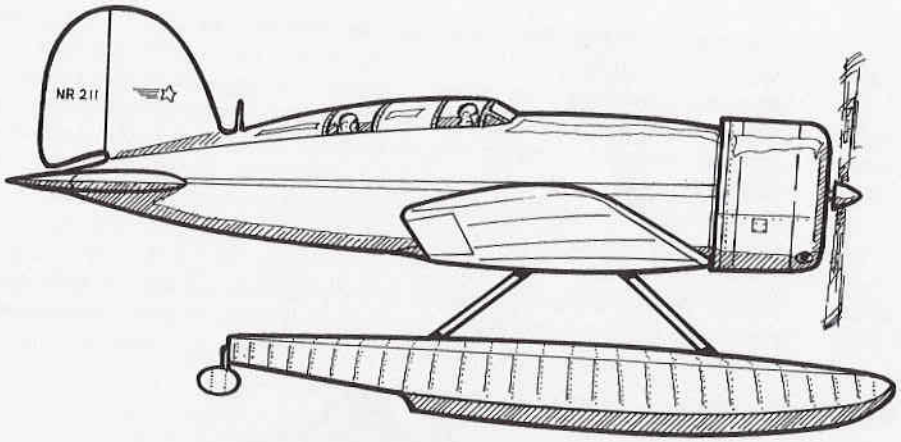
In 1929, two American female aviators set out to break the world record for nonstop endurance flight. It had been established by male flyers Dale Jackson and Forrest O'Brine in July of that year with an astonishing 420 hours in the air. The only way to achieve such a long span of time in flight was by mid-air refueling, a new and dangerous operation in those days. Experienced female pilots Bobbi Trout and Elinor Smith made their run at the record in their Sunbeam airplane (above left) in November, 1929. After various mishaps that included mechanical difficulties with the refueling plane—a timeworn Curtiss Carrier Pigeon nicknamed the "wet nurse" (above right)—they made their final attempt on November 27. They broke the women's flight endurance record with a forty-two-hour air journey, but more problems with the "wet nurse" foiled their capturing the overall world record. With this feat, they also attained the distinction of becoming the first women in aviation history to successfully complete air-to-air refueling.

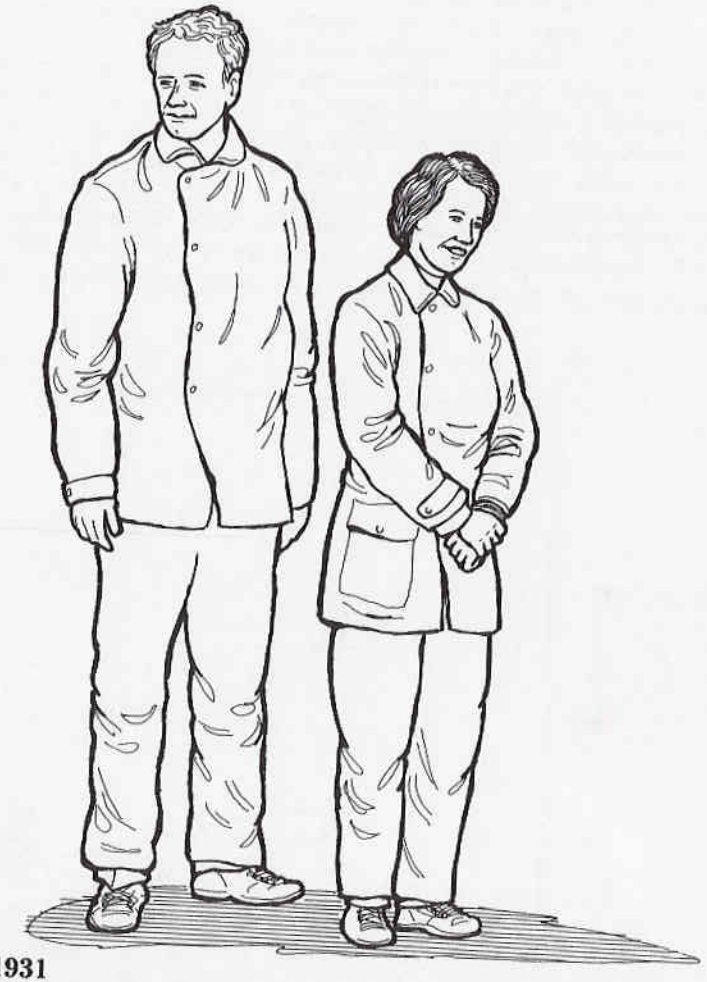


17. AMY JOHNSON, 1930

The British regard the extraordinary Amy Johnson as their Amelia Earhart. This ambitious and determined female aviatrix, with very little flying experience, set out on a daunting 10,000-mile air journey from England to Australia—a flight halfway around the world. With just eighty-five hours of solo flight time, this single-minded twenty-six-year-old flyer was determined to beat the record of fifteen and one-half days for this air trip set by veteran pilot Bert Hinkler in 1928. She would attempt the grueling solo flight in a spindly secondhand open-cockpit deHavilland Gipsy Moth (above), powered by an engine of just 100 horsepower, nicknamed "Jason" after the mythical Greek hero who also served as the trademark for her family's fish business.

Taking off from Croydon airfield near London on May 5, 1930, Johnson covered the first leg of her 800-mile journey until she reached Vienna, Austria. From there she flew on to Istanbul, Turkey, and then navigated the lofty peaks of the Taurus mountains of Turkey, landing at Aleppo, Syria later that day. The next leg took her to Baghdad, Iraq, and after two more flying days, to Karachi, Pakistan. After an emergency repair stop at the village of Jhansi, India, Johnson journeyed ever eastward to Rangoon, Burma. From there her Gipsy Moth took her to Bangkok, Thailand, and then out over the ocean and the islands of Indonesia, stopping at Surabaya on the island of Java. The final leg of her journey took her over the Timor Sea, and finally into the port city of Darwin, on the northern Australian coast on May 24. Amy Johnson's amazing journey had taken nineteen and one-half days—not enough to beat the world record but certainly sufficient to catapult her onto the front pages of newpapers all over the world. In Britain she received a heroine's welcome, was awarded $50,000 by the London *Daily Mail*, and had a song—"Amy, Wonderful Amy"—written in her honor.





18. ANNE MORROW LINDBERGH, 1931

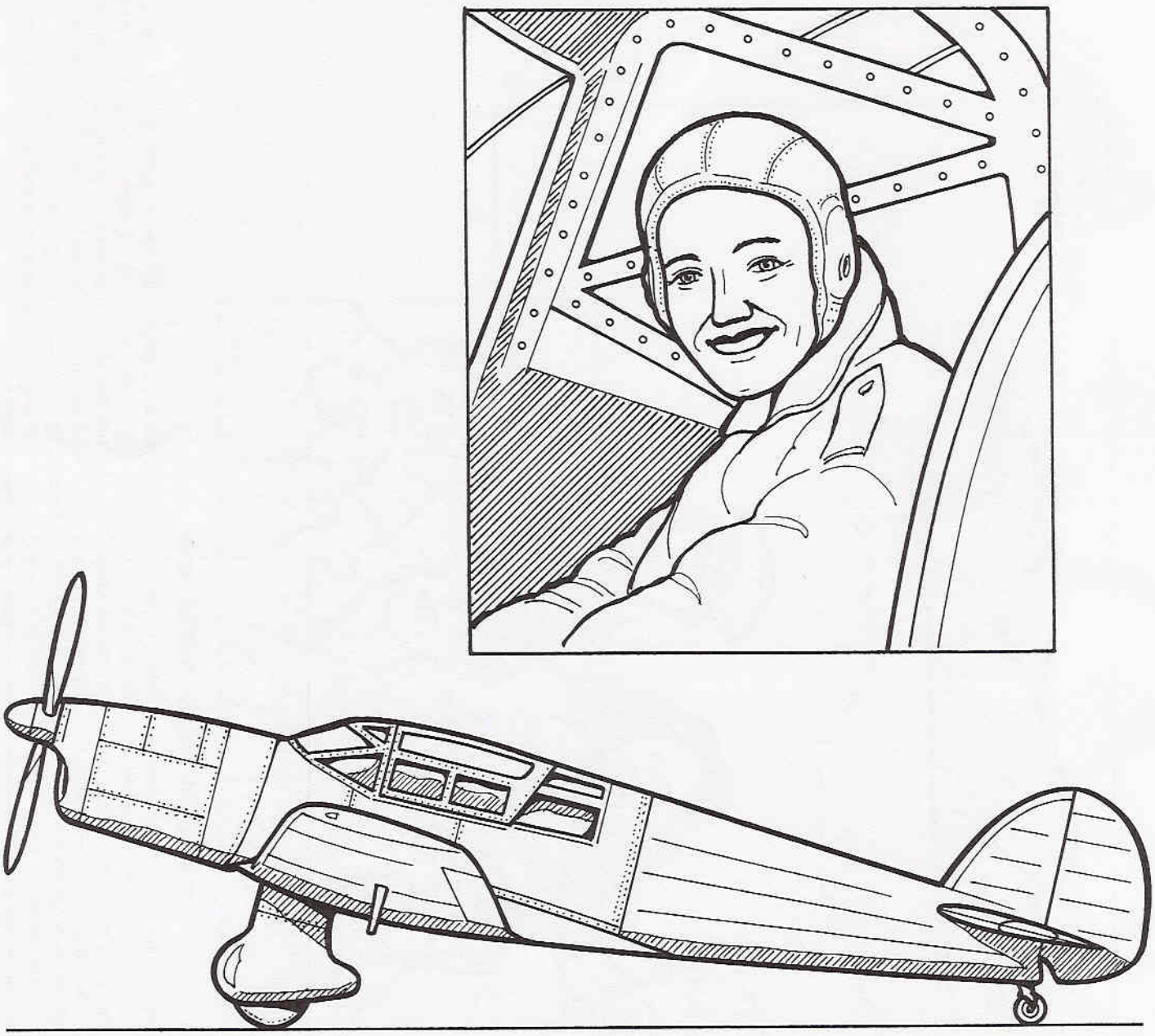
As the wife of famed aviator Charles Lindbergh, Anne Morrow Lindbergh was a full partner in their historic and often dangerous long-distance flights. As copilot, navigator, radio operator, and devoted companion, she earned a place of distinction in aviation history. Anne was also a distinguished writer well-known for her poetry, novels, and autobiographical works.

On their first date, Charles Lindbergh invited Anne Morrow to go up in his plane for a flying lesson. When they married in 1929, she soon demonstrated her own love of flying by being the first woman to earn a glider's license. In 1930, the couple made a record-breaking nonstop transcontinental flight in a Lockheed Sirius, covering the distance from California to New York in a little over fourteen hours. Their next collaborative adventure would take them halfway around the globe when, in 1931, they flew from New York to Japan via the Arctic to chart new flight paths for Pan American Airways—a project known as the Great Circle survey. Their trusty Lockheed Sirius was modified into a seaplane (above) by the replacement of its wheels with pontoons. The last great survey flight they made for Pan Am began in 1933 when they mapped out a North Atlantic route to Europe stopping at Labrador (Newfoundland), Greenland, Iceland, the Faroe Islands, and Denmark. After touring Europe, the Lindbergh's return flight took them south from Lisbon, Portugal, over the Azores, to Gambia, West Africa, then out over the South Atlantic to Brazil. From there, they flew up the coast of South and Central America and back into the United States, landing in New York's Flushing Bay, their starting point five months earlier. This remarkable journey traversed twenty-three countries, covered over 30,000 miles, and paved the way for the age of transatlantic commercial airline flights.

19. VALENTINA GRIZODUBOVA, 1933

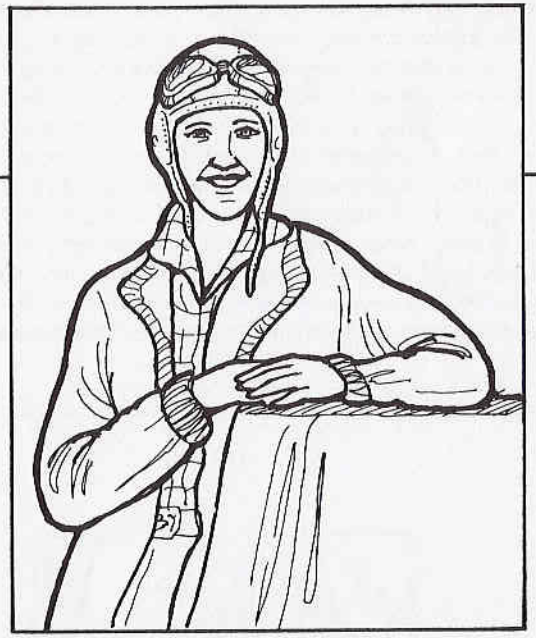
The qualities of extreme fortitude and courage among Russian women made them uniquely suited to the challenges of a career in aviation. One such outstanding aviatrix was Valentina Grizodubova, who became a pilot and flying instructor in 1933. (She is depicted above with some of her students.) In 1937, along with sister pilots Polina Ossipenko and Marina Raskova, Grizodubova flew on a perilous and grueling 3,000-mile reconnaissance flight from Moscow to Siberia, setting a new world record for the time.

Women aviators served on many battlefronts when the global conflict of World War II erupted. With the German invasion of the Soviet Union in 1941, that nation's female civilian pilots volunteered and flew for the Russian air force. During the war years, Valentina assumed command of 300 male pilots in a long-range night bomber squadron, accompanying them on many dangerous missions. For her distinguished service, Valentina Grizodubova received many high-level honors including the title "Hero of the Soviet Union." She was also commemorated with a postage stamp issued in her honor by her native country.



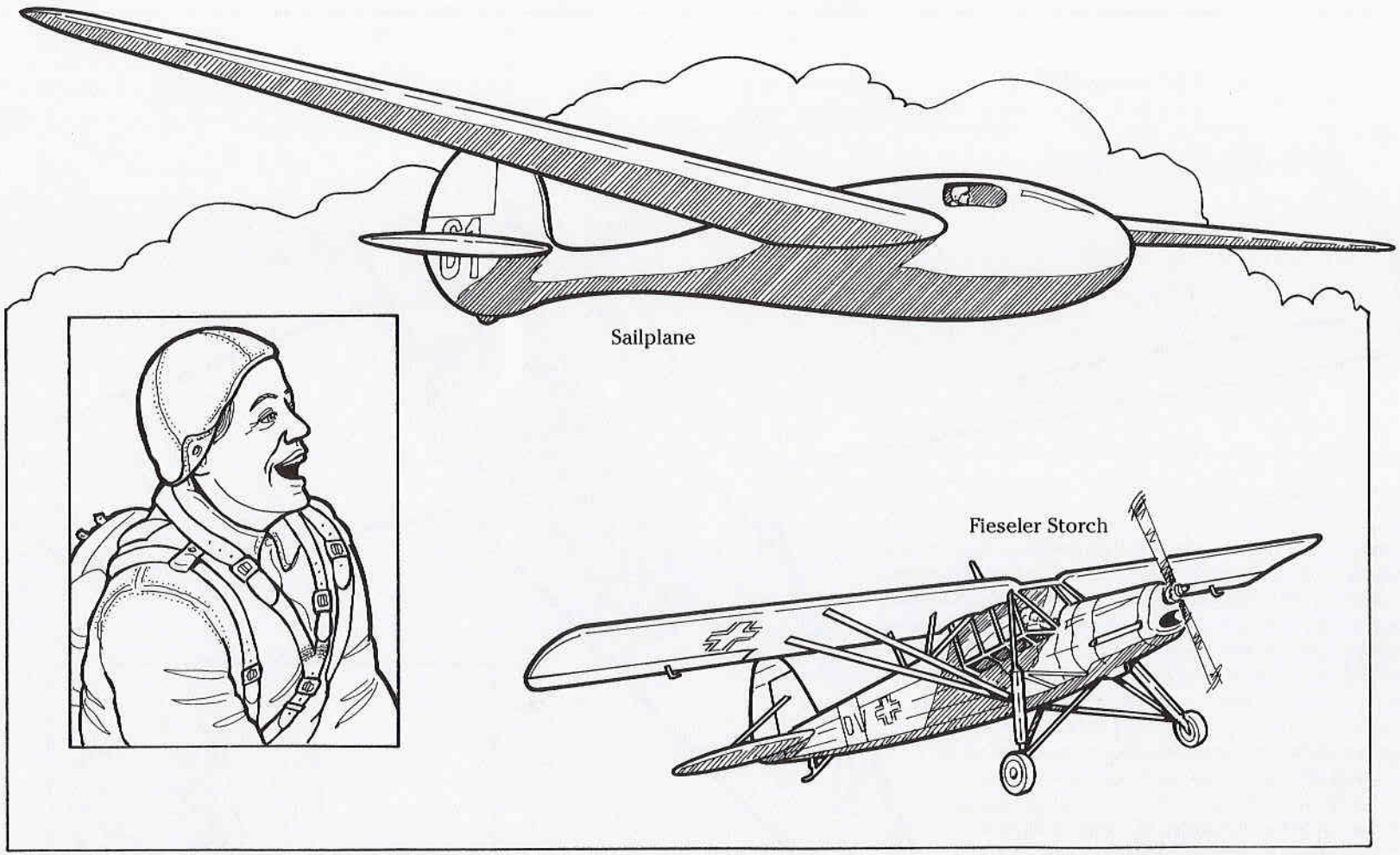
20. JEAN BATTEN, 1935

During the first half of the twentieth century, the British empire spanned the world, and included colonies and commonwealth member nations like Canada, Australia, India, New Zealand, and South Africa. From this far-flung network of British culture, a number of daring and skilled female aviators took to the skies. One of them was New Zealander Jean Batten. From the age of ten she was smitten with a love of flying, and by 1929 had moved to London and obtained her pilot's license there. Batten decided her first challenge would be to better Amy Johnson's flying time on her historic flight from England to Australia. Two initial efforts failed, but Batten's third attempt in 1934 succeeded. Piloting an aging, patched-up Gipsy Moth, she made the arduous 10,500-mile air journey in fourteen days, twenty-two and one-half hours. The indomitable Batten's next goal was to break the west-to-east transatlantic crossing record of seventeen hours, forty minutes set by male aviator Jim Mollison. In November, 1935, Jean took off from Dakar, Senegal, West Africa, bound for South America in her new and speedy Percival Gull airplane (pictured above). She reached Brazil in a record-breaking thirteen hours, fifteen minutes, proving once more that female aviators were indeed the equal of their male counterparts. Batten was the winner of the coveted Harmon trophy three years in a row, once sharing it with Amelia Earhart. While her aerial achievements made her one of the most celebrated women aviators of all time, in later years Batten became a recluse. In 1982, she died alone in Majorca, Spain, where she was buried anonymously in a paupers' graveyard.



21. BERYL MARKHAM, 1936

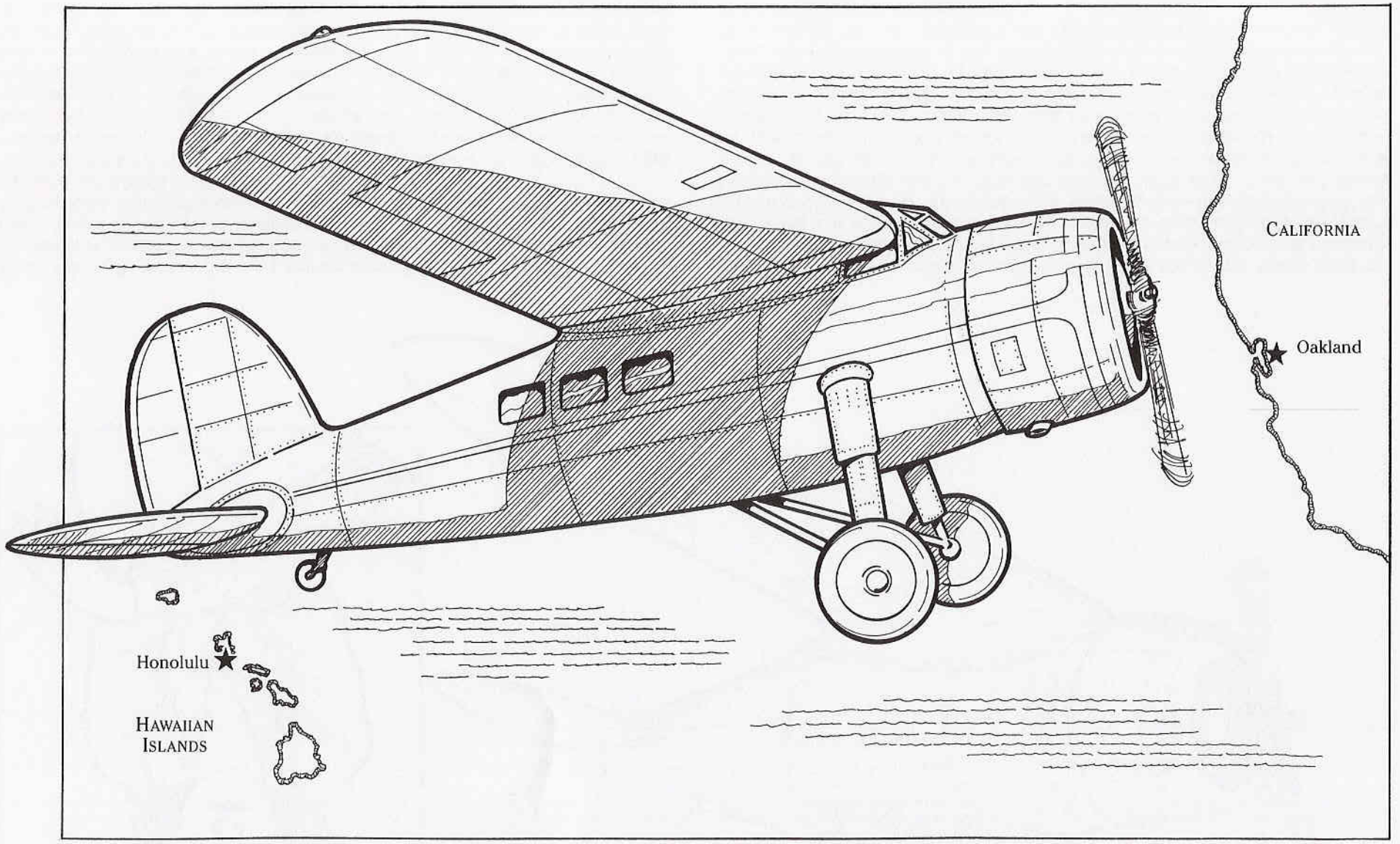
Beryl Markham was another intrepid British aviatrix. Raised in British East Africa (now Kenya), Beryl obtained her pilot's license in 1931. She began working as a commercial pilot, flying passengers, goods, and medicines around the African continent. Following in the footsteps of Amy Johnson and Jean Batten, Markham flew the long and difficult Nairobi (Kenya) to London route four times. In 1936, she decided to attempt a North Atlantic crossing, flying from east to west. Because of prevailing headwinds in this direction, this flight path was considered far more treacherous than the west to east route. Piloting a sleek and sturdy Vega Gull aircraft (below), Markham took off from Abingdon, England on September 4, 1936, and successfully made the crossing in nineteen hours. When she ran out of fuel on her landing approach, Markham accomplished a tricky dead-stick (unpowered) touchdown in a Nova Scotia bog, when her plane nosed-over into the soft muddy ground. Slightly bruised but unbroken, she emerged with a new women's aviation record.



22. HANNA REITSCH, 1936

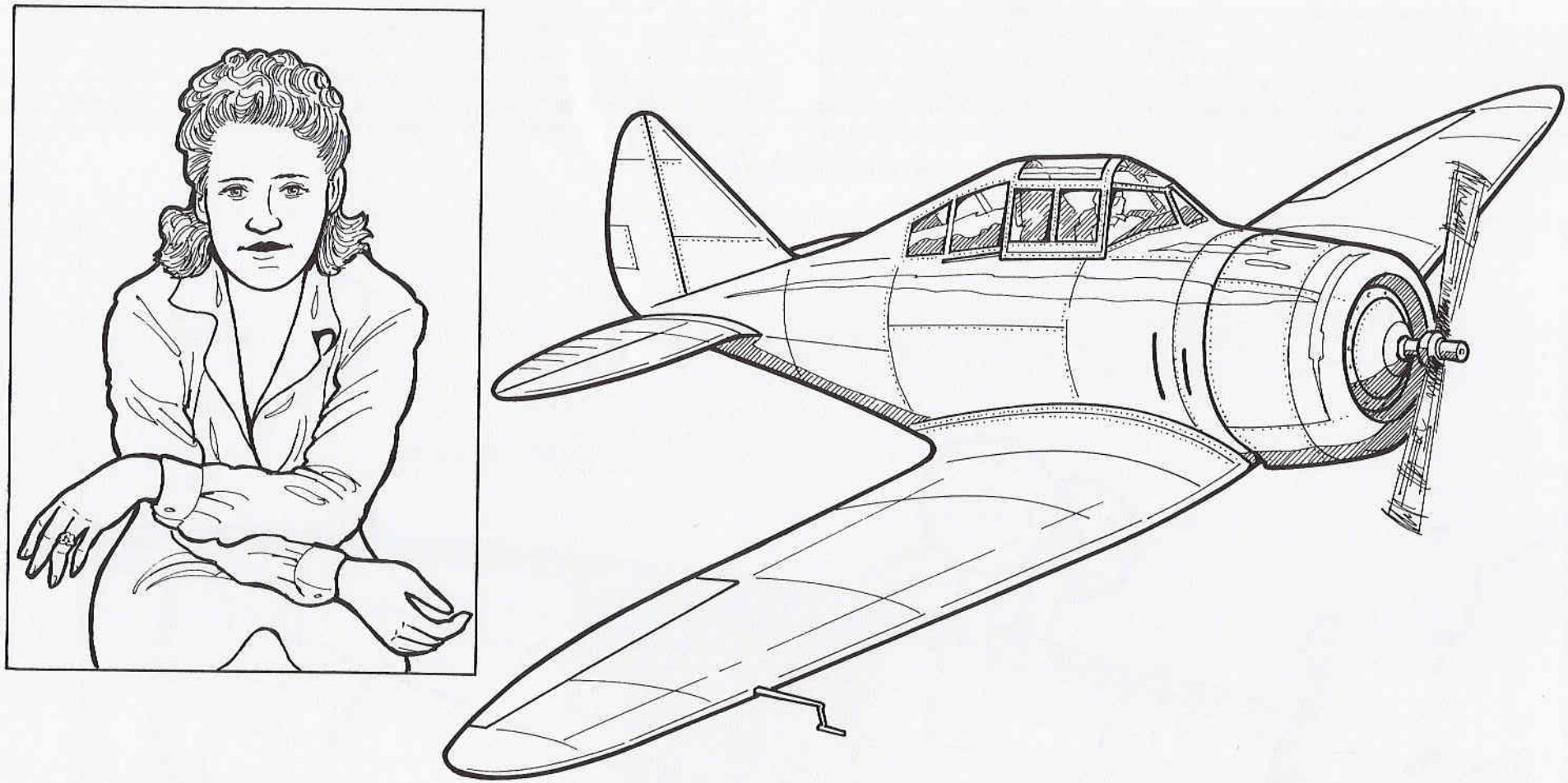
Born in 1912 in Hirschberg, Silesia, Hanna Reitsch would become one of the most remarkable figures in female aviation history. Just over five feet tall and weighing less than ninety pounds, she became a record-setting glider pilot, test pilot, and military pilot for the German Luftwaffe (Air Force) during World War II, and was decorated several times for her achievements by Hitler himself. In 1934, at the age of just twenty-two, Reitsch broke the women's world record for long-distance soaring with a flight of over 100 miles. She soon moved on to powered aircraft, and in 1938 became a research pilot for an early model helicopter. In 1938, Reitsch was one of three German pilots to participate in the National Air Races in Cleveland.

During the war, Hanna flew every type of military aircraft in the Luftwaffe inventory, including the fast but extremely dangerous Messerschmitt Me 163 Komet. This rocket-powered fighter could reach a speed of over 500 mph in just a few seconds, and attain a height of over 30,000 feet in about two minutes. After four successful tests, the plane crashed on its fifth trial and Hanna was severely injured; she languished on the brink of death for five months in a hospital until she recovered, and undeterred, took up her flight career right where she had left off. Her most famous wartime exploit came during the very last days of the war, in April 1945, when she volunteered to fly German Colonel-General Robert Ritter von Greim into Berlin—then surrounded by Soviet troops—to meet with Adolf Hitler. Flying in a slow-moving observation aircraft, the Fieseler Storch (stork), Hanna piloted the aircraft into the besieged capital, skillfully dodging Soviet defenses. A few days later, she got herself and von Greim out of the besieged city unscathed—just before its fall. Unfortunately, despite her impressive exploits and distinguished career as an aviatrix, Reitsch's place in history is overshadowed by her devotion and unwavering service to the Nazi regime.



23. AMELIA EARHART, 1935

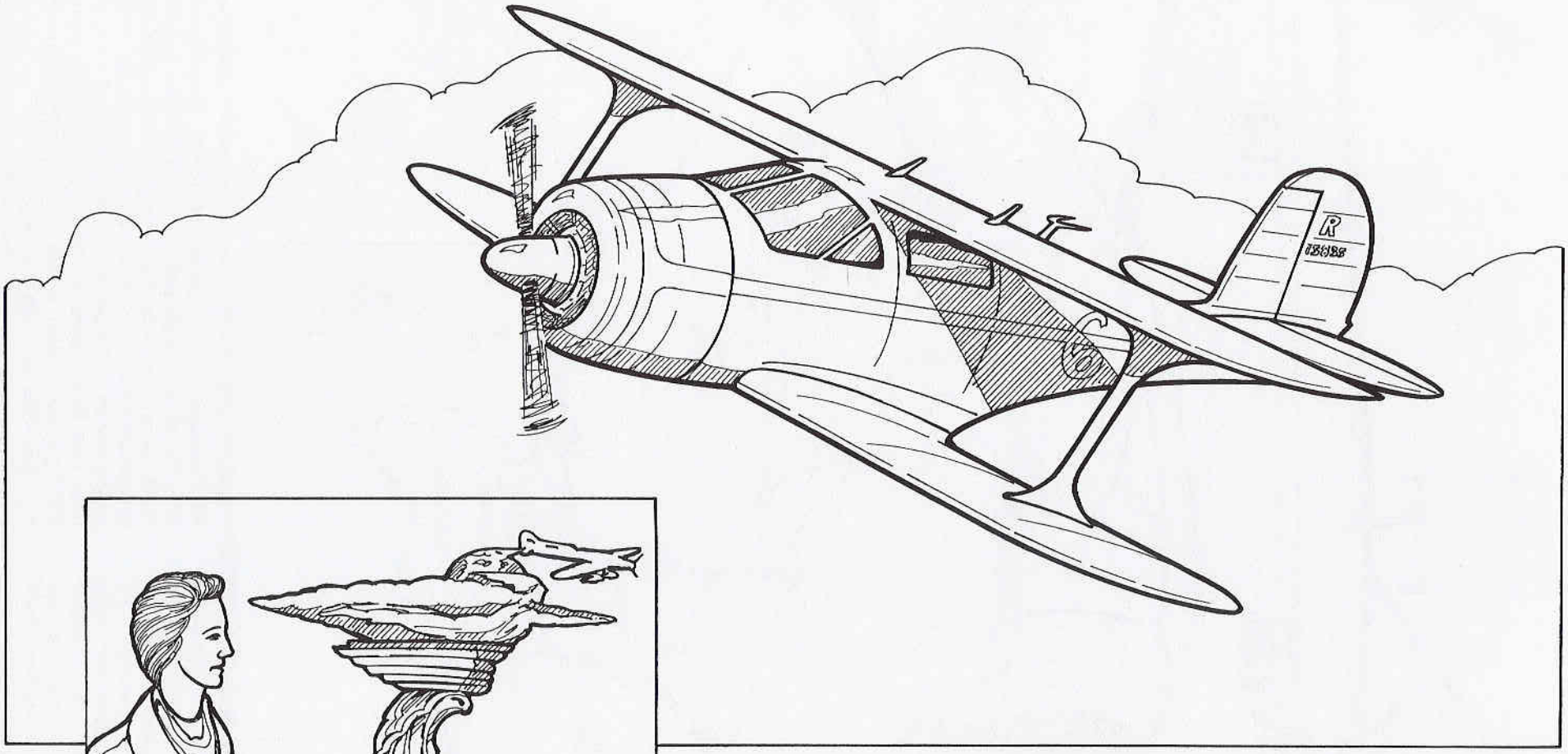
For her next challenge, Amelia Earhart sought to accomplish the first solo transpacific flight from the Hawaiian Islands to the United States mainland. This 2,400-mile open ocean sojourn was one of a series of preparatory flights which were a prelude to her eventual around-the-world attempt. In late December of 1934, Amelia and her new Lockheed Vega left California by ship, bound for Hawaii. After her arrival in Honolulu, Earhart spent several weeks planning the event, which was scheduled for January 11, 1935. Although a morning downpour left the airfield a sea of mud on the appointed day, at 4:30 p.m. the dauntless aviatrix guided the Vega (above)—heavily laden with 500 gallons of fuel—into the air. After a flawless eighteen-hour flight, she touched down in Oakland, California to a waiting crowd of 10,000 cheering spectators. Having achieved yet another milestone in women's aviation history, the ambitious Earhart began gearing up for her next goal—to circle the globe by air.

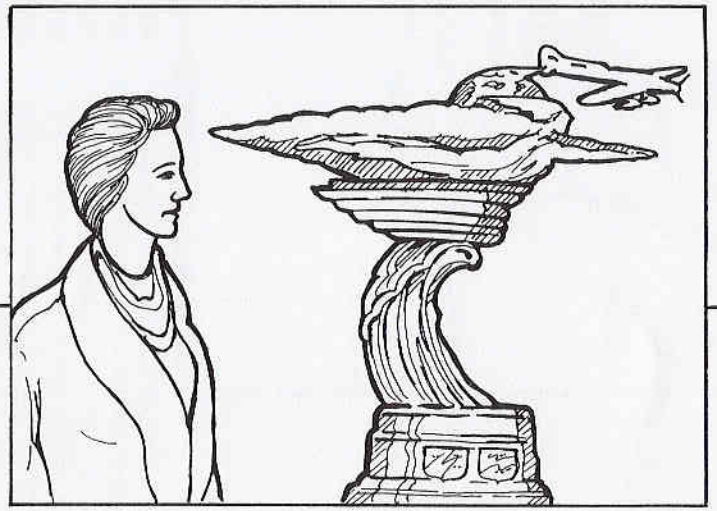


24. JACKIE COCHRAN, 1938

While Amelia Earhart is the most famous flyer of her century, Jackie Cochran is arguably the greatest woman pilot to take to the air, with a long list of accomplishments spanning forty years of aviation history. By the time of her death in 1980, Cochran held about 250 world records for speed, altitude, and distance—more than any other pilot, male or female.

Born dirt poor in the Florida panhandle and orphaned as an infant, Jackie began working at the age of eight, struggling for many years in a series of difficult and low-paying jobs. The spirited Cochran vowed from an early age that she would overcome her poverty-stricken roots and rise to the ranks of the rich. The stepping-stone to her goal ultimately proved to be the beauty business, where she started at the bottom as an assistant to a beauty shop owner. In time, she mastered new skills and gained enough stature in the field to earn her a job at a popular New York City salon with a network of wealthy clients. When she wanted to gain more mobility in her newest venture as a traveling cosmetics saleswoman, she started taking flying lessons—a pursuit which swiftly led to her parallel career as one of the most extraordinary aviatrix of all time. Smitten with the rage to fly, Cochran obtained her pilot's license in 1932. In 1933, she founded her own business—the Jacqueline Cochran Cosmetics Company—and by 1934, she was competing in air races and setting records. In 1938, she won the coveted Bendix Trophy when she emerged the victor in the long-distance race from Los Angeles to Cleveland. Competing against male and female flyers alike, Jackie flew her Seversky AP-7 (above) over the course in a record eight hours and ten minutes with an average speed of just over 250 mph. It was no accident that her swift AP-7 was the civilian prototype for the Seversky P-35 fighter plane, since Jackie believed it was part of her mission as a flyer to participate in aviation research. Cochran would later play a significant part in creating a vital role for female aviators in World War II.

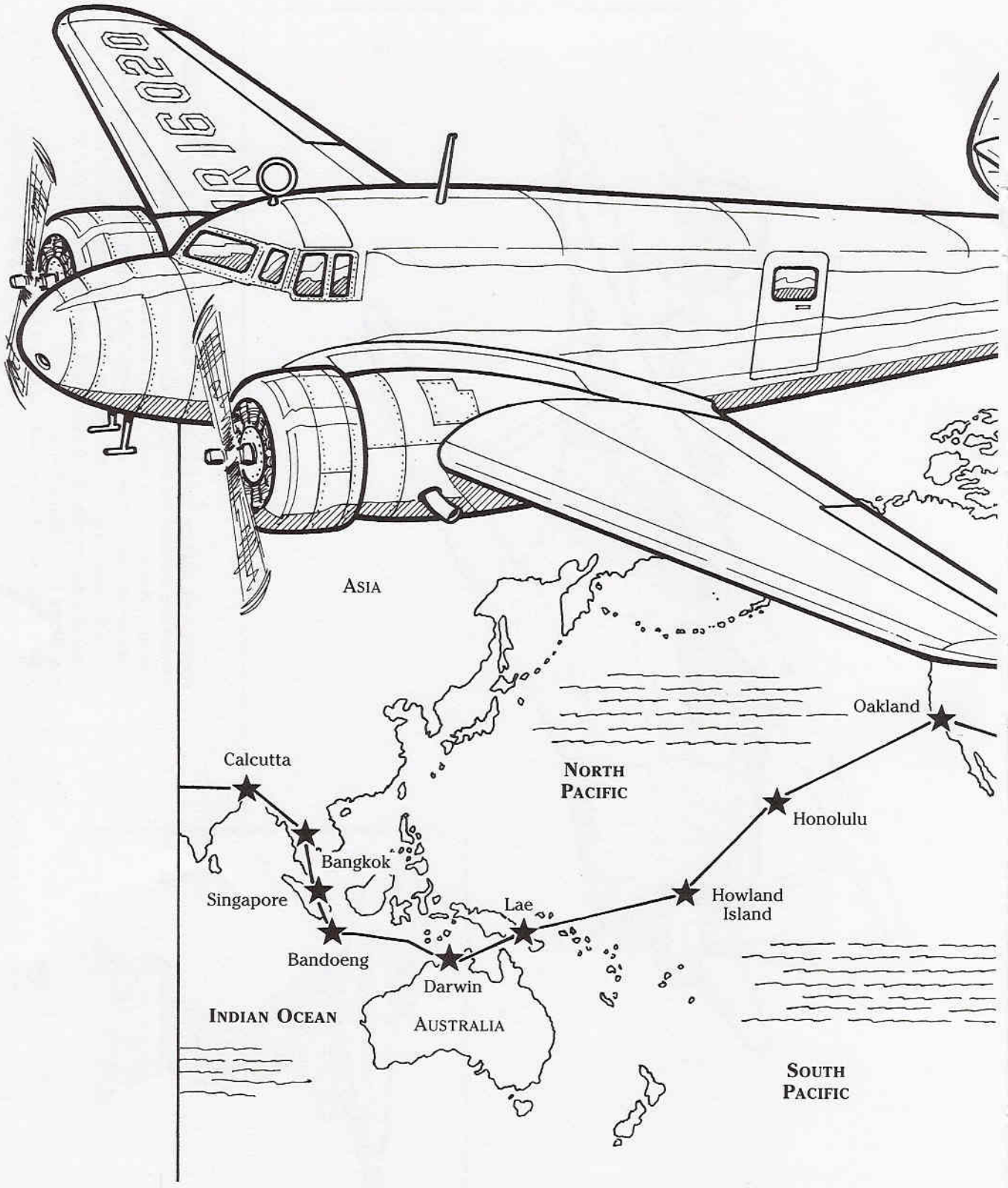




25. LOUISE THADEN, 1936

One of Jackie Cochran's most notable contemporaries in the world of women pilots and air racing was Louise Thaden. An experienced flyer, Louise gained prominence in 1935 when she and partner Blanche Noyes scouted and mapped air route markers across the United States. These 16,000 location markers were painted in bright orange letters twelve feet high—a size large enough to be legible from 30,000 feet—on the rooftops of buildings all over the country. They proved to be invaluable navigation aids to commercial, mail, military, and private pilots flying long distances in those early days. The project was initiated by Phoebe F. Omlie—another accomplished aviatrix—of the National Advisory Committee for Aeronautics who explained that "an air route without markings was like a highway without signs." And it was the First Lady herself—Eleanor Roosevelt—who suggested that the plan be implemented by female pilots, who would choose suitable buildings for the signs, and make the deals with local officials and property owners for the sign-painting.

In 1936, Louise competed in the prestigious Bendix Trophy air race from Los Angeles to Cleveland. She flew one of the most advanced and distinctive aircraft of the day, the Beechcraft Model 17 Staggerwing (above). With its unique biplane design featuring the lower wing positioned ahead of the top wing, its steeply sloped front windshield, and its 420-horsepower radial engine, the Staggerwing was both fast and beautiful. With her copilot Blanche Noyes, Louise won the race in fourteen hours, fifty-five minutes, averaging just over 210 mph.

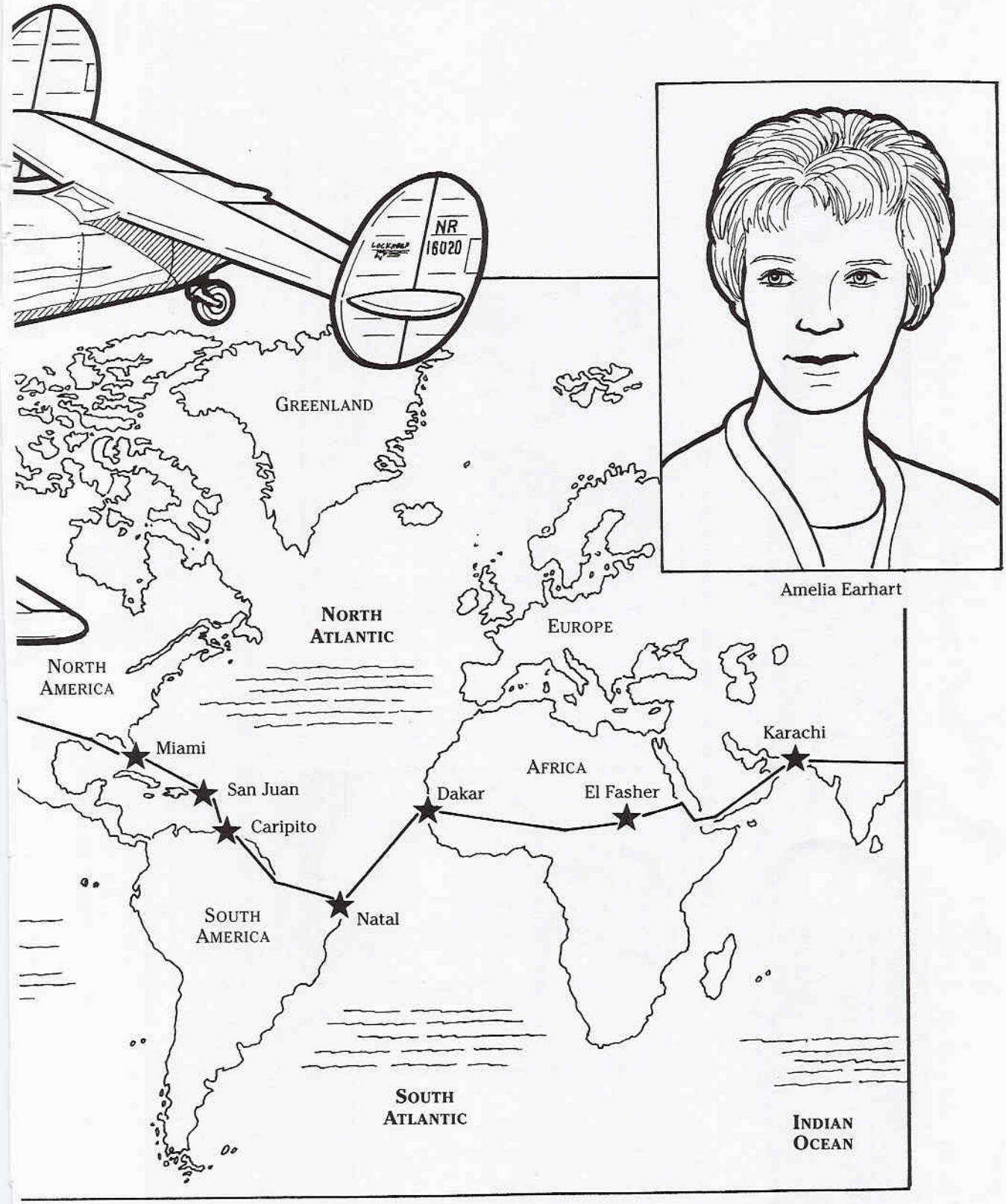


26–27. AMELIA EARHART'S LAST FLIGHT, 1937

By 1937, Amelia Earhart was ready for her most demanding challenge as an aviatrix: to be the first pilot to fly completely around the world along a route that roughly followed the equatorial bulge—about 29,000 miles. In preparation for such a grueling undertaking, Amelia replaced her trusty single-engined Lockheed Vega with a brand new twin-engine Lockheed Electra (above). The sleek Electra was fast, reliable, and had great flying range. To accompany her as navigator, Amelia chose veteran Pacific Ocean flyer Fred Noonan.

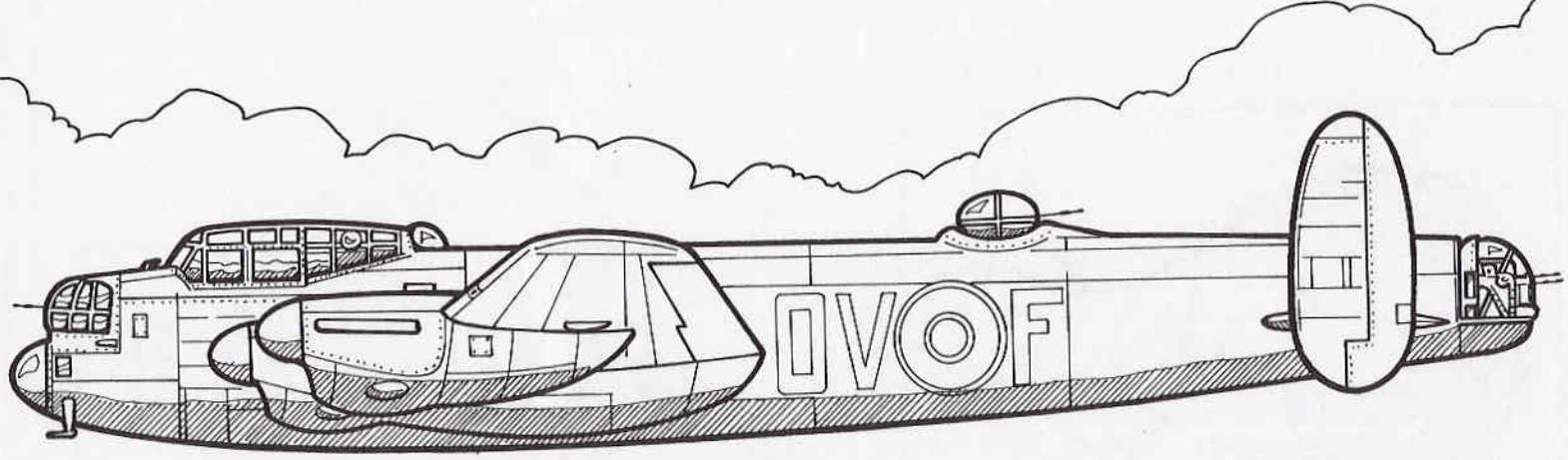
The two began their journey on June 1, 1937. They had originally staked out a flight path from west to east across the Pacific, as shown on the above map; but as a result of a delayed departure date accompanied by a new set of prevailing weather conditions, Amelia decided to fly the Atlantic route first. So she embarked eastward from Miami on the first leg of her sojourn, leaving the transpacific flight—the most dangerous leg of the trip—for last.

The flight proceeded from Miami to Puerto Rico, and then



Amelia Earhart

to Natal, Brazil. From there they successfully completed the Atlantic crossing to Dakar, Africa. Flying on, Earhart and Noonan crossed Africa and Asia—by way of El Fasher, Egypt, Karachi, Pakistan, Calcutta, India, and Rangoon, Burma—then continuing on their route over the South Pacific islands of Singapore, Bandoeng, and Java, and on to Darwin, Australia. The last leg of the flight would begin at Lae, New Guinea, and take them to a mid-Pacific refueling stop at Howland Island—a tiny, flat island, exceedingly difficult to spot by air. From there, they would fly to Hawaii and then back onto the United States mainland. Tragically, Earhart and Noonan would disappear before reaching Howland Island. Only a few garbled radio messages would be left as clues to their whereabouts, and speculation over their fate continues to the present day. The world was stunned and saddened by the apparent loss of this brave and resourceful woman—the "winged legend"—whose adventurous spirit endures as an inspiration to all future generations of female aviators.



Pauline Gower in uniform (left) and in the cockpit (right)

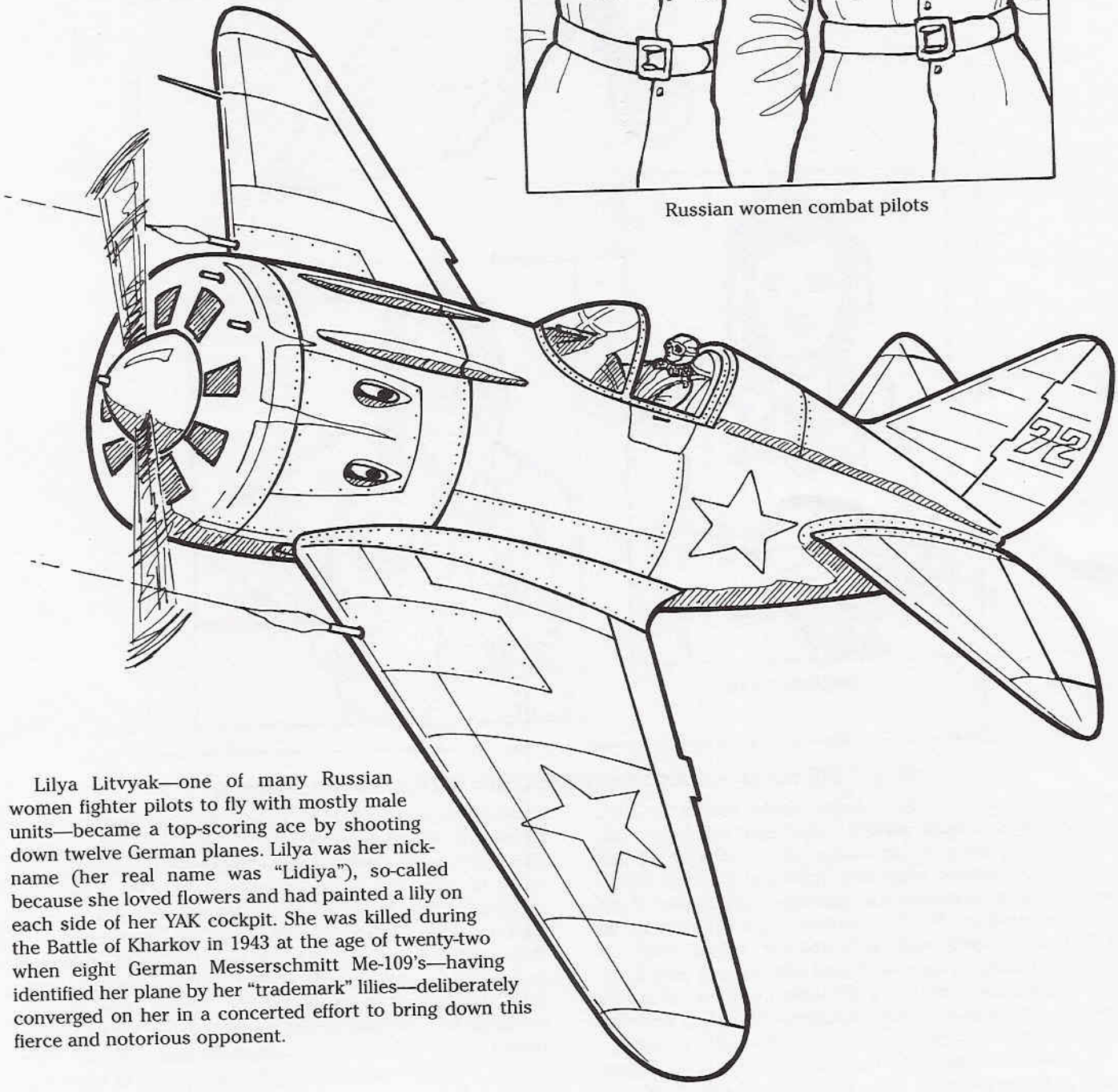
28. PAULINE GOWER AND THE AIR TRANSPORT AUXILIARY, 1940

With the entry of Great Britain into the firestorm of World War II, the nation's female pilots took an active part in the war effort (although, as in the First World War, they were still banned from a combat role). In 1940, veteran commercial flyer Pauline Gower was charged with organizing and commanding a women's division of the Air Transport Auxiliary (ATA), whose mission was to ferry aircraft from their manufacturing facilities to locations all over England and Scotland. It was difficult and dangerous work. Women ATA pilots were first restricted to flying small single-engine trainers. But by 1943, due in large part to their excellent flying record, Pauline Gower's ATA women were transporting all types of aircraft—including high-performance fighters like the famous Vickers Supermarine Spitfire, and enormous four-engined bombers such as the Avro Lancaster (above). While over a hundred female pilots of various nationalities worked for the ATA—and welcomed the opportunity to fly professionally for those few years—fifteen women were killed while in its service, including legendary aviatrix Amy Johnson.

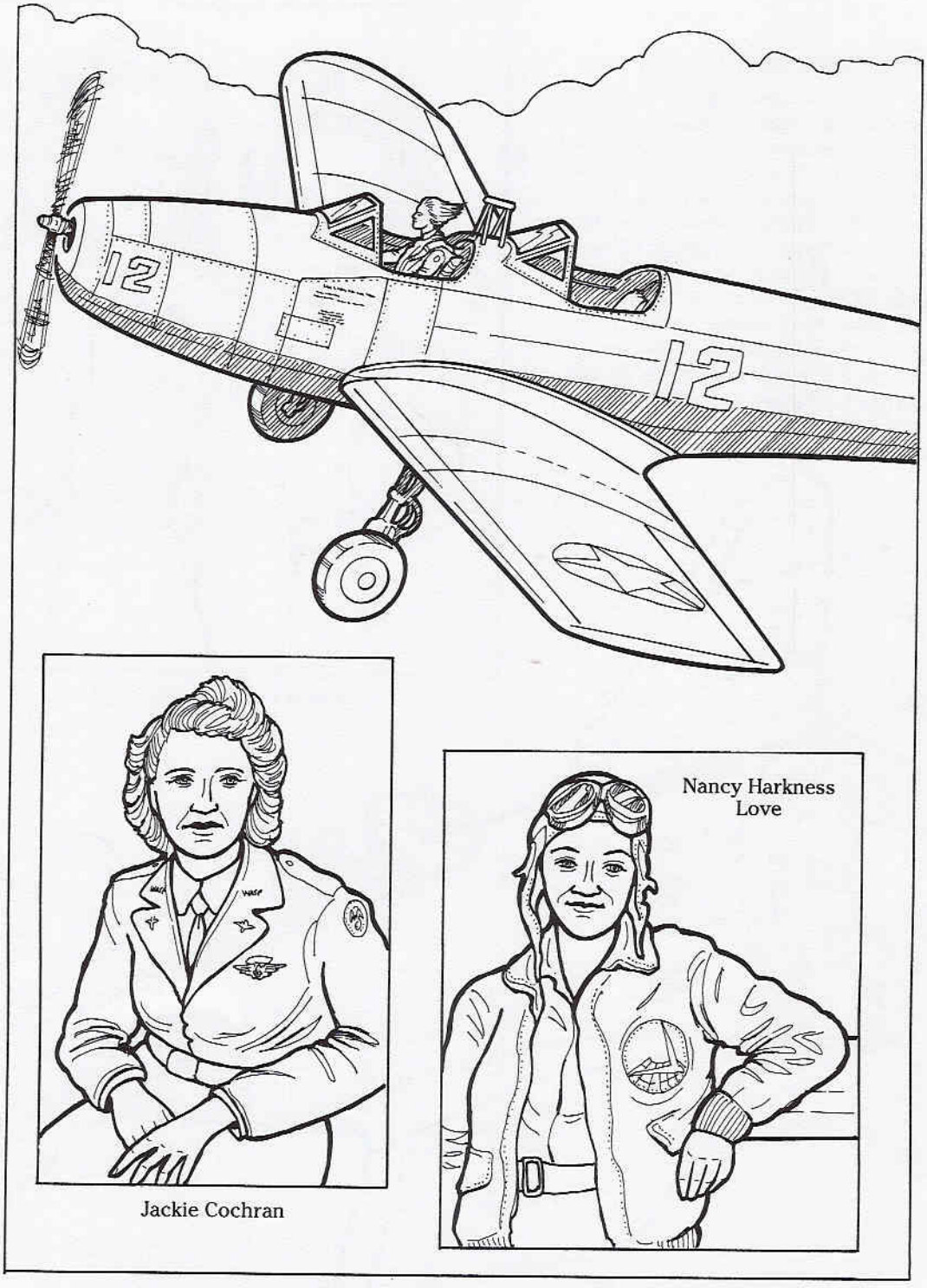
29. RUSSIAN FEMALE COMBAT PILOTS, 1941

During the Soviet Union's struggle against the Nazi invasion, large numbers of female aviators served in the military; in fact, the Russians were the only people who allowed their women to fly combat missions. The all-female 586th Fighter Regiment—consisting of 200 recruits and organized by Marina Raskova, one of the nation's most experienced aviatrix—fought in 125 separate air battles. In one encounter, just two Yakovlev YAK-3 fighters of the 586th attacked forty-two German bombers, shooting down four enemy planes before incurring damage and becoming disabled. (Two highly decorated women combat flyers are shown on the right with a Polikarpov I-16 fighter aircraft below.)

Russian women combat pilots



Lilya Litvyak—one of many Russian women fighter pilots to fly with mostly male units—became a top-scoring ace by shooting down twelve German planes. Lilya was her nickname (her real name was "Lidiya"), so-called because she loved flowers and had painted a lily on each side of her YAK cockpit. She was killed during the Battle of Kharkov in 1943 at the age of twenty-two when eight German Messerschmitt Me-109's—having identified her plane by her "trademark" lilies—deliberately converged on her in a concerted effort to bring down this fierce and notorious opponent.



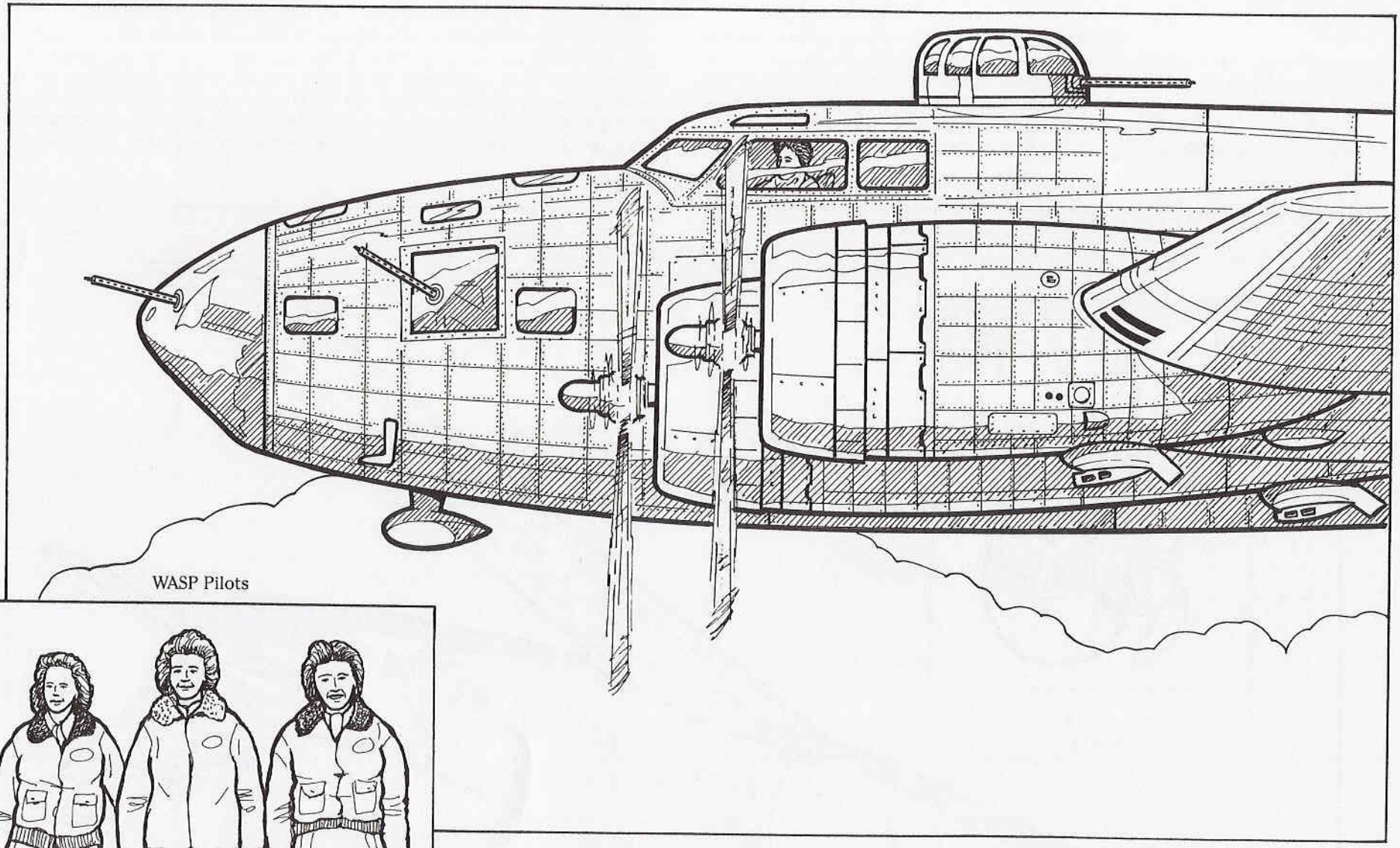
Jackie Cochran

Nancy Harkness Love

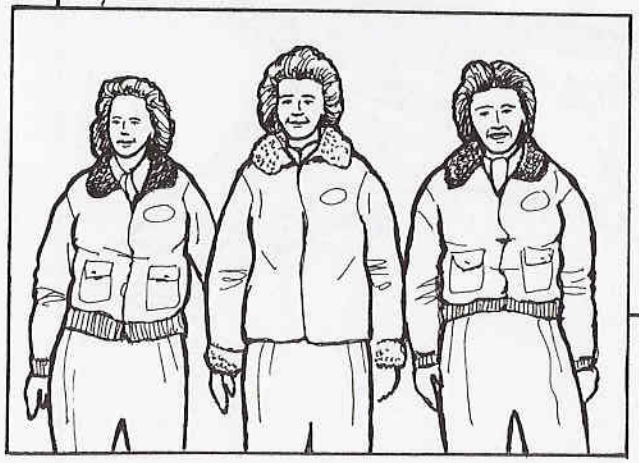
30. JACKIE COCHRAN AND NANCY HARKNESS LOVE, WORLD WAR II

When the United States entered World War II in 1941, American female flyers played a significant role in the war effort. Among many others, there are two dedicated and highly skilled women especially worthy of mention. Nancy Harkness Love was made the Squadron Commander of the Women's Auxiliary Ferrying Squadron (WAFS) formed in 1942. This relatively small unit was part of the Army Air Force Air Transport Command, and was charged with ferrying training planes like the PT-19 (above), to bases all across America. After a short evaluation period, the WAFS were ferrying all types of aircraft to various United States air bases.

By 1943, the Army Air Force had recognized the importance of the work being done by this small detachment of WAFS pilots, and decided to expand the group to include the thousands of qualified women pilots who were volunteering their services. The WAFS were incorporated into a larger unit of the air force, the Women Airforce Service Pilots (WASPs) with Jackie Cochran—who had in 1941 organized a group of expert women pilots to fly with the ATA in Great Britain—as their overall director. During the war, the WASPs delivered and flew seventy-seven different types of aircraft ranging from high-speed fighters to the largest four-engined bombers, with a total of 12,650 planes transported across the United States. Of the 1,830 courageous and patriotic members of the WASP unit, thirty-eight lost their lives while performing their duties.

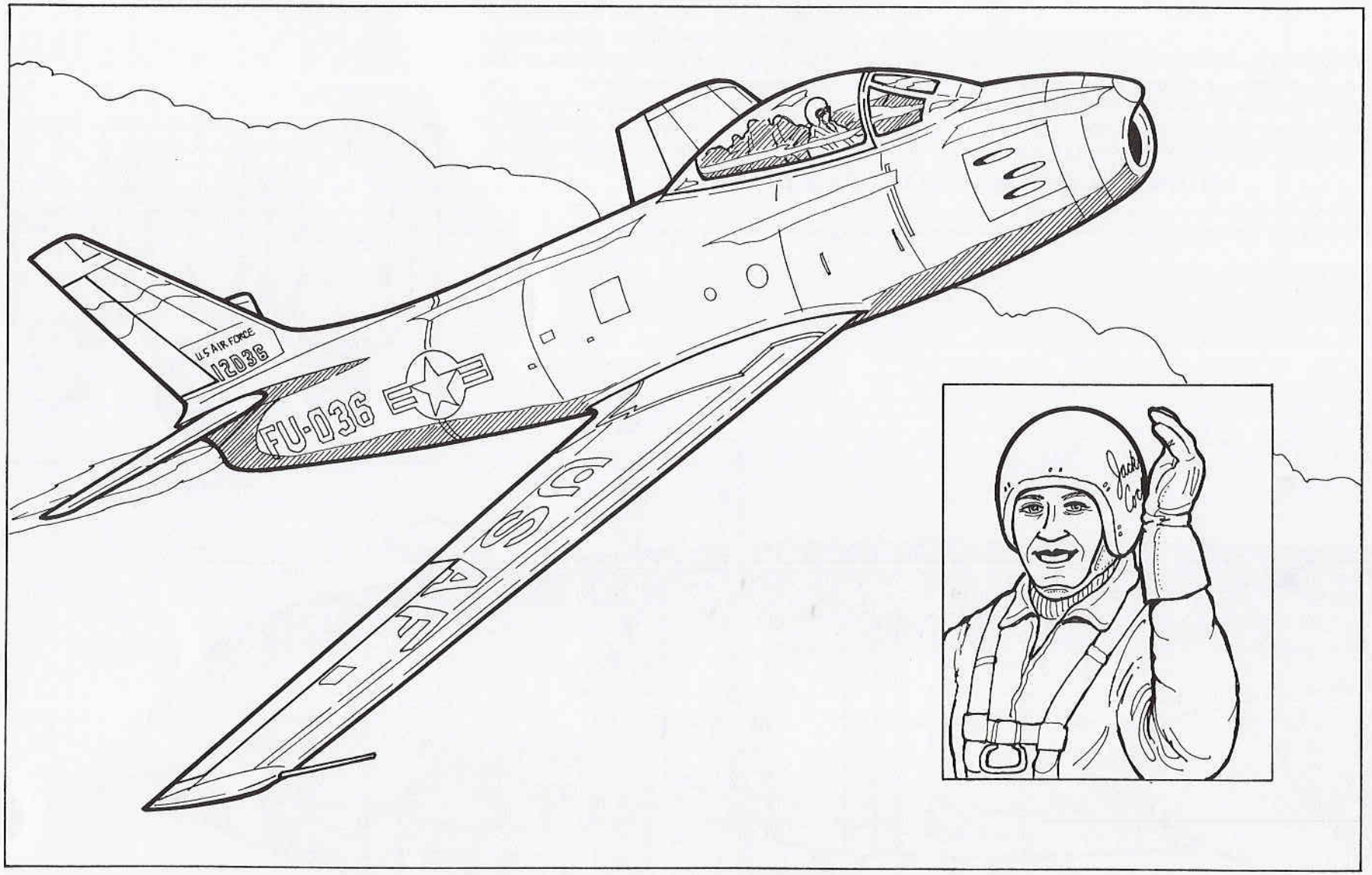


WASP Pilots



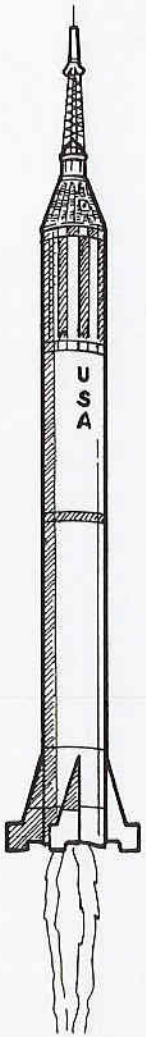
31. WASP PILOTS FLY B-17 HEAVY BOMBER, WORLD WAR II

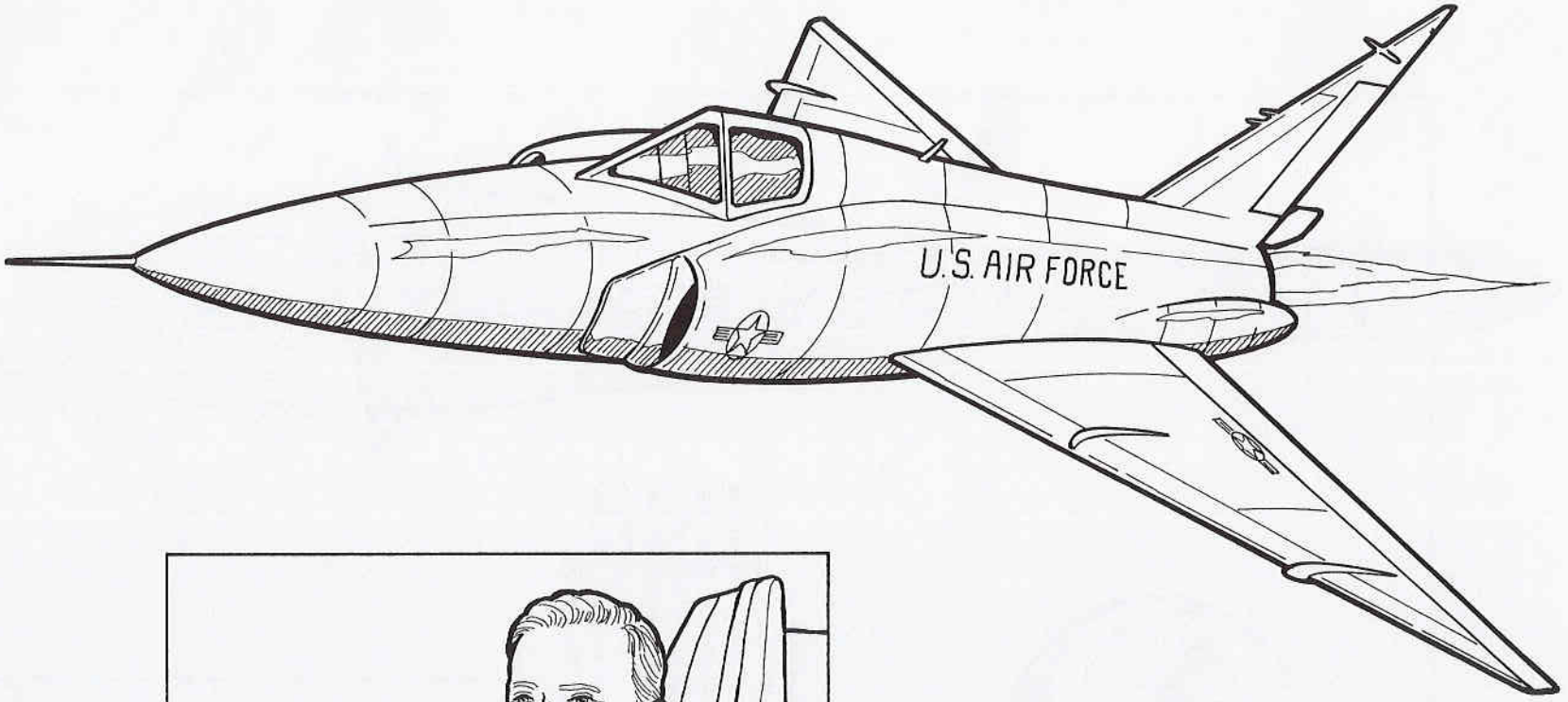
The mainstay of the United States bombing campaign to destroy the war-making capability of Nazi Germany was the Boeing B-17 Flying Fortress shown above. The B-17 was powered by four Wright Cyclone radial engines developing 1,200 horsepower each, giving the Flying Fortress a top speed of 287 mph and normal cruising speed of 170 mph. With a 6,000-pound bomb load, the B-17 had a range of about 2,000 miles. Armed with up to thirteen .50-caliber machine guns for defense, the Flying Fortress was appropriately named. Over 12,000 B-17's were built during the war years, and they remain to this day one of the most famous planes ever built.



32. JACKIE COCHRAN, 1953

After World War II, Jackie Cochran was promoted from a lieutenant to a colonel in the Air Force Reserve. In this connection, she worked with famed test pilot Chuck Yeager, the first person to exceed Mach 1—the speed of sound—in the Bell X-1 rocket plane. The jet age had begun, and Jackie was eager to become proficient in this new and lightning quick aircraft. She began training in early jets like the Lockheed F-80 Shooting Star and the North American F-86 Sabre jet fighter at Edwards Air Force Base Flight Test Center. The F-86 was the fastest jet in the air force inventory, and had been flown very successfully against the Russian-built MiG-15 fighter during the Korean War (1950–1953). Powered by a General Electric J47 turbojet engine developing 5,970 pounds of thrust, the Sabre had a top speed of about 680 mph and was armed with six .50-caliber machine guns. In May 1953, Jackie flew a number of flights in the F-86 (above) wherein she established a new women's speed record, and became the first woman to break the sound barrier (about 700 mph).

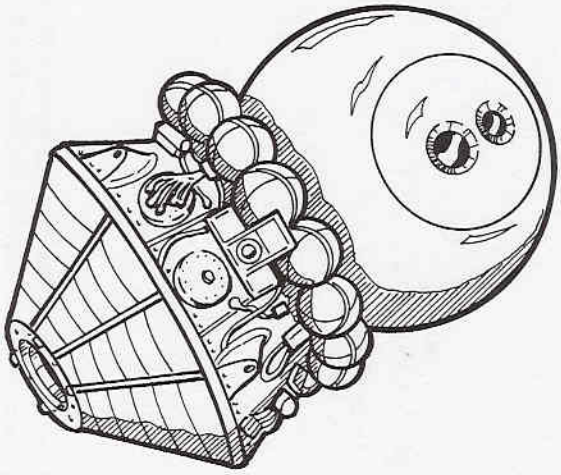


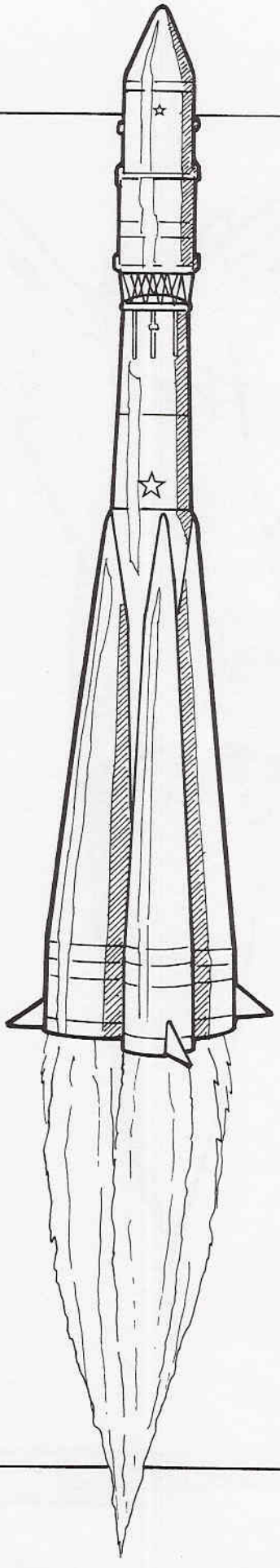


33. JERRI COBB, 1960

The jet age soon ushered in the space age, and women pilots were eager to become part of its exciting new challenges. When the Soviet Union launched Sputnik—the world's first artificial satellite—into the earth's orbit, they scored the first triumph in the space race. The technological battle for supremacy in space between the United States and the Soviet Union had begun. The Russians earned the distinction of yet another first when they launched their cosmonaut, Yuri Gagarin, into the earth's orbit in 1961.

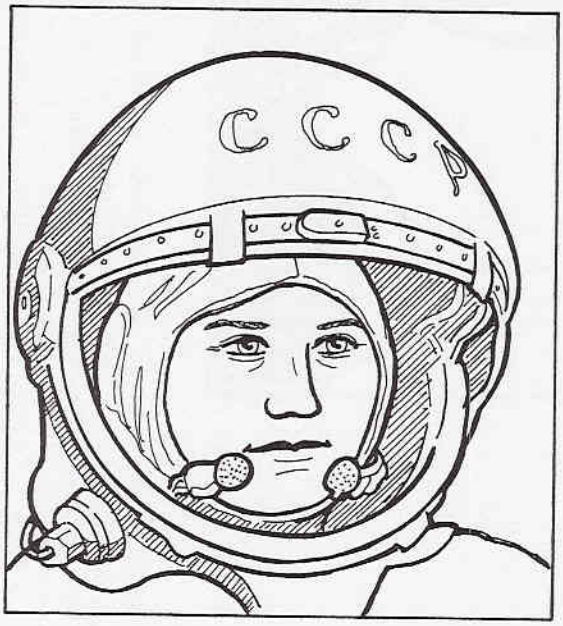
The American manned space effort, Project Mercury, began in 1959 with the selection of the seven original Mercury astronauts, all male, and included Shepard, Grissom, Glenn, and Carpenter. The following year, Jerri Cobb—an experienced test pilot who held a number of world records for speed and altitude—became the first and only woman to pass all three stages of the Mercury astronaut tests. She had even flown one of the air force's supersonic Century Series fighter jets, the Convair F-102 Delta Dagger (above), capable of speeds in excess of 800 mph. While Alan B. Shepard Jr. became the first American astronaut to be launched into suborbital space in 1961, followed by John H. Glenn Jr. in 1962 in the first American orbital spaceflight, Jerri Cobb—although thoroughly qualified and trained for astronaut duty—was destined to remain earthbound. Because of political pressure and lack of public support for a female astronaut, it would be another twenty-three years before the United States would send a woman into space.

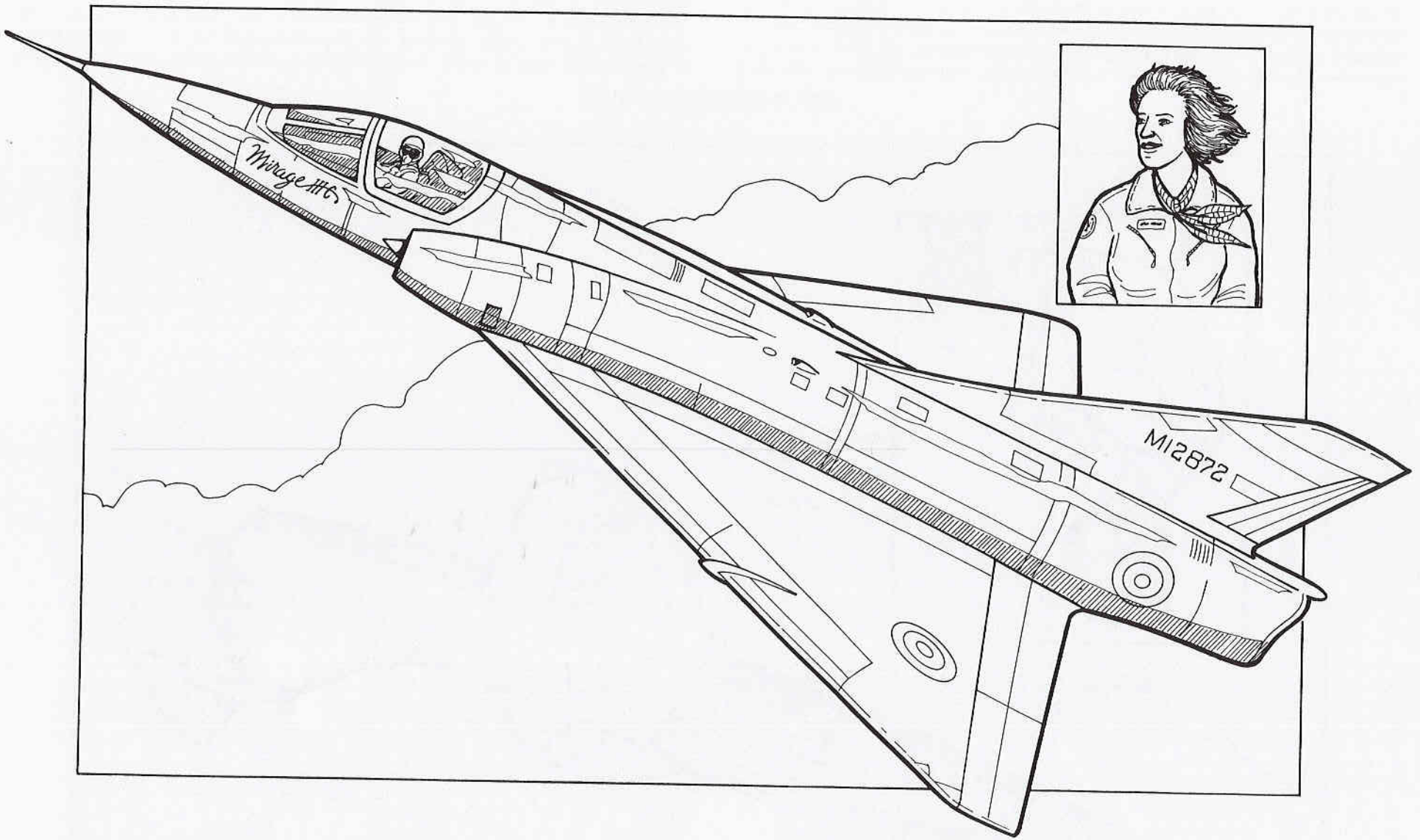




34. VALENTINA TERESHKOVA, 1963

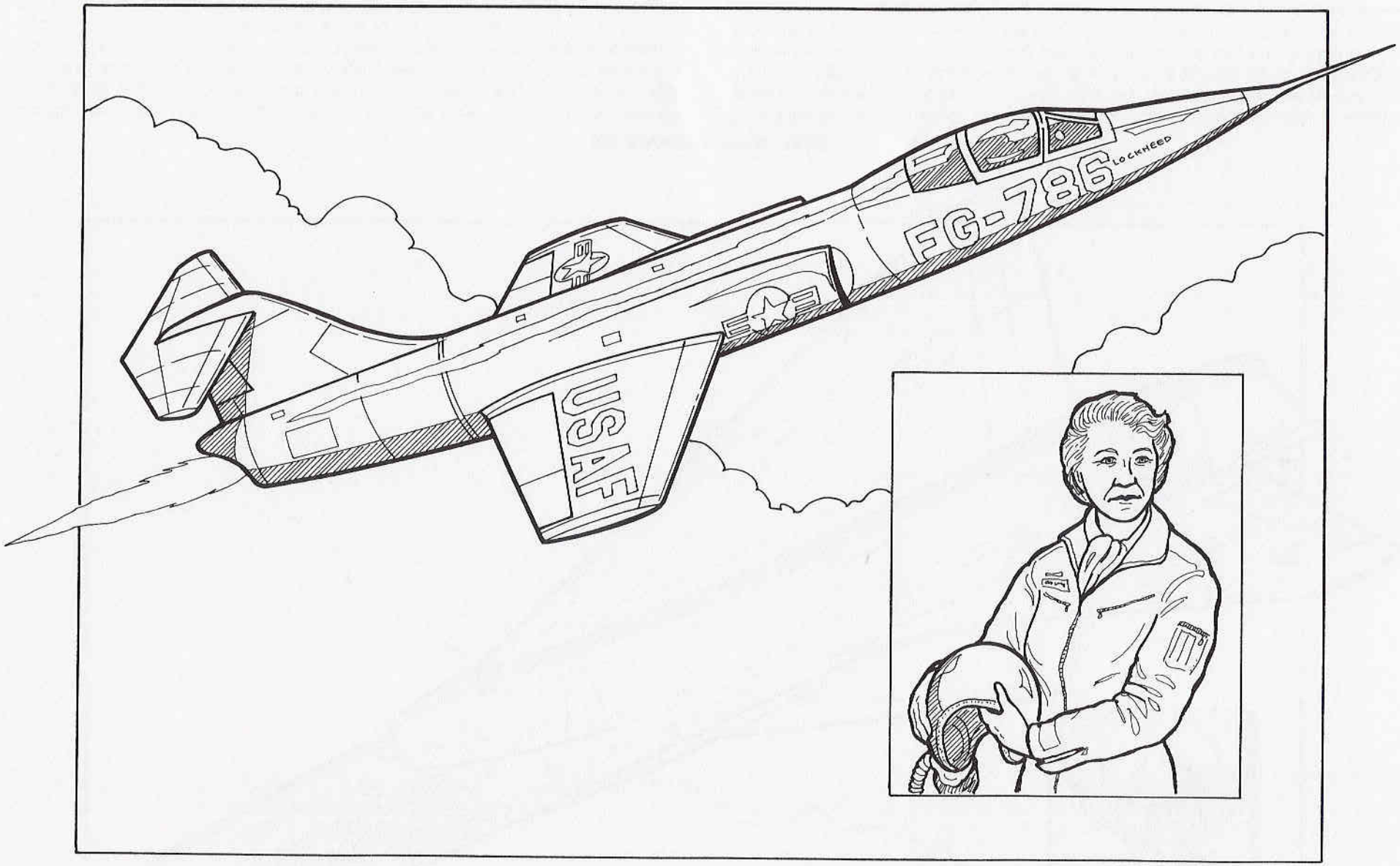
In 1963, the Soviet Union again trumped the American space program with the launch of cosmonaut Valentina Tereshkova, who at twenty-six became the first woman to enter space and orbit the earth. Valentina had a background as an amateur parachutist when she was selected for cosmonaut training. She was launched into space on June 16, 1963 by a Vostok rocket booster (right), and completed over forty earth orbits in seventy hours and fifty minutes before her return in the spherical Vostok capsule (above left).





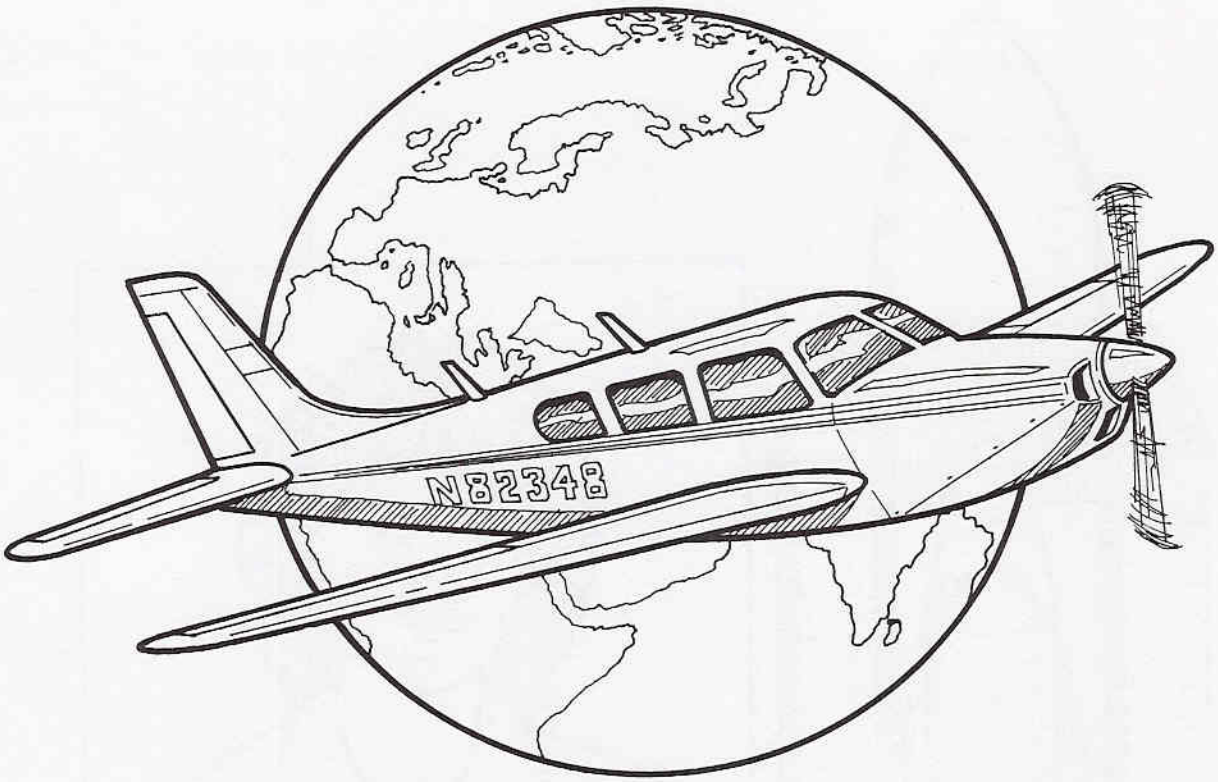
35. JACKIE AURIOL, 1963

During the 1950s and 60s, jet aircraft technology took dramatic leaps forward. Progress in engine power, electronics, airframe materials, and aerodynamics were demonstrated by a multitude of advanced experimental and prototype aircraft. Skilled test pilots were kept busy flying at the cutting edge of the new technologies. Aviatrix Jackie Auriol of France became one of the top female test pilots of this era. She and Jackie Cochran traded the title of "World's Fastest Woman" back and forth from 1951 to 1963, with both holding world speed and altitude records at various times during this period. In 1963, Auriol captured the woman's speed record in a French jet fighter, the Dassault Mirage III (above), with a blazing speed of 1,266 mph. Among her many other record-setting achievements, Auriol was the second woman to break the sound barrier, one of the first pilots of the supersonic Concorde, and by the end of her remarkable career, had piloted over 100 different types of aircraft.



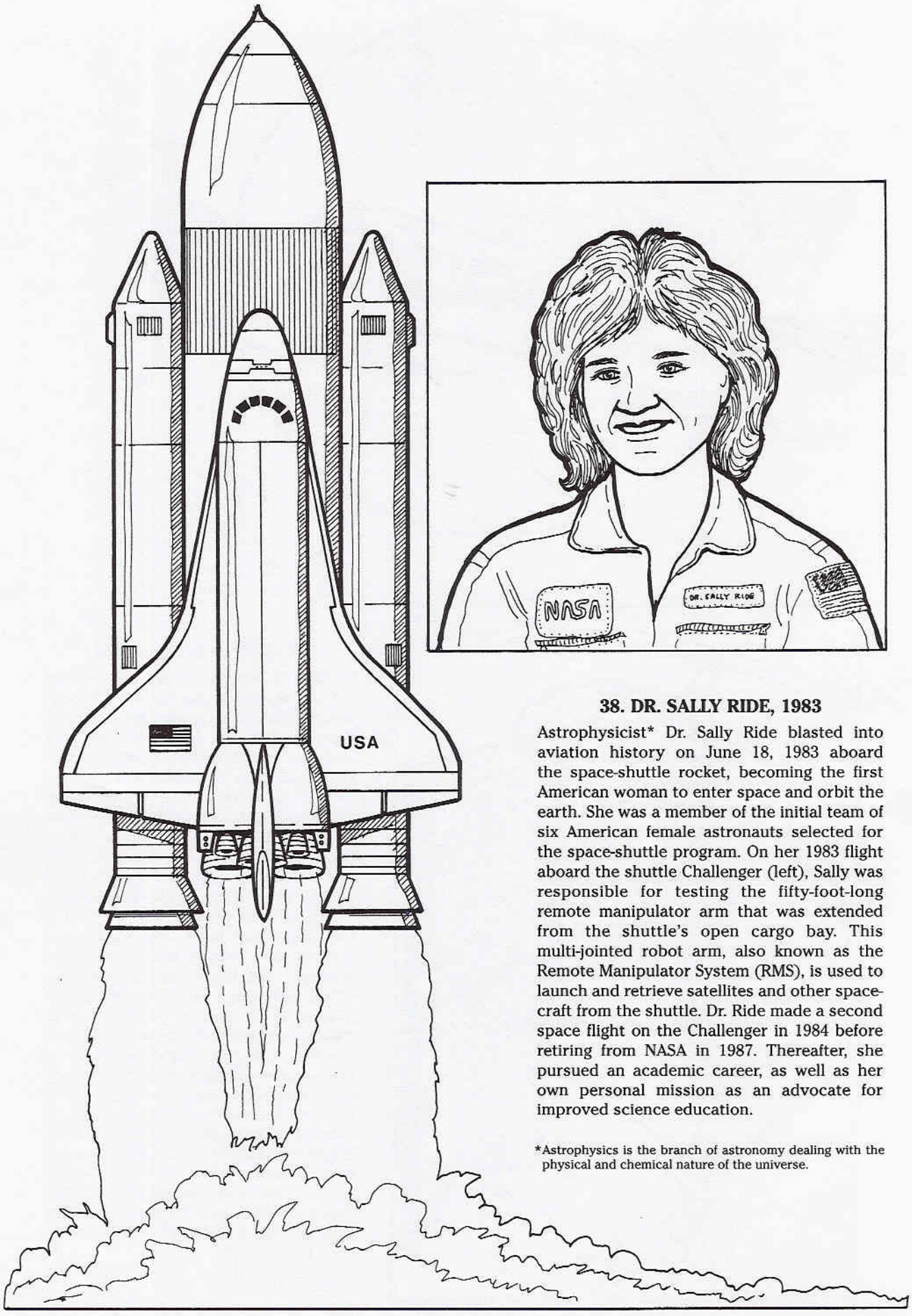
36. JACKIE COCHRAN, 1964

In response to the challenge set by France's Jackie Auriol in 1963, Jackie Cochran began training for a new speed record in the "hottest" fighter then in the United States Air Force inventory. Sleek, needle-nosed, and tremendously fast, the Lockheed F-104 Starfighter (above), one of the famous Century Series of fighters, had a maximum speed of 1,450 mph. In 1964, she piloted an F-104 to a record-breaking speed of 1,429 mph, becoming the first female aviator to fly at twice the speed of sound. She was fifty-six years old. Unfortunately, by 1970, Cochran developed medical problems that were serious enough to ground her by 1971. And finally in 1980, the finest woman pilot in the history of aviation passed away at age seventy-two, leaving behind an unmatched legacy of dedication and achievement.



37. SHEILA SCOTT, 1966

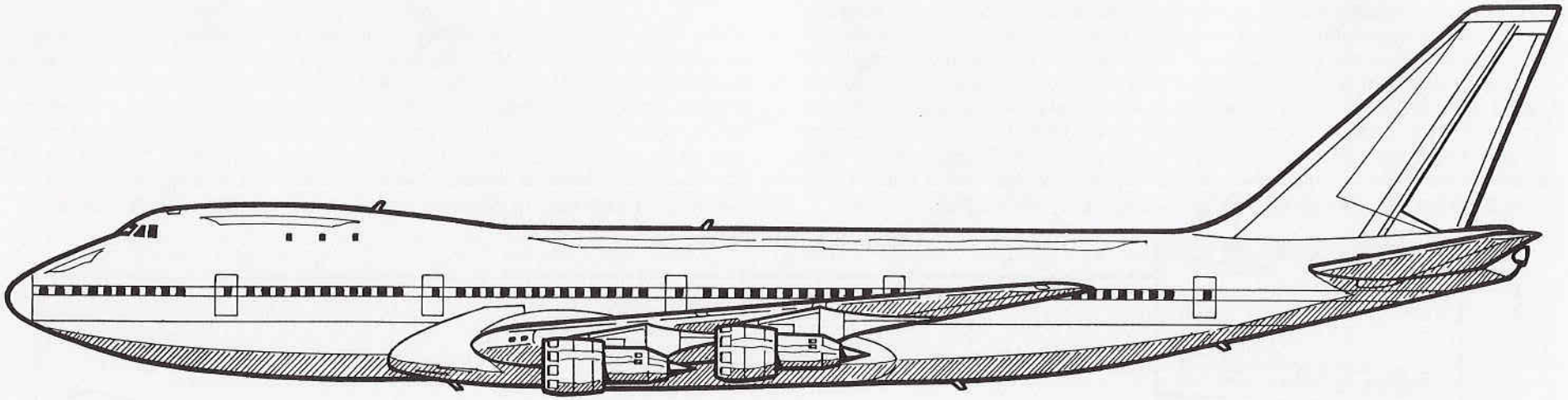
In 1966, in a small, single-engine Piper Comanche private plane (above), English aviatrix Sheila Scott made an historic solo flight around the world that instantly made her an international celebrity. She circumnavigated the 32,000-mile distance around the earth's equator in a widely publicized thirty-three-day flight, deliberately choosing the longest possible route. Earlier on in her aviation career, Scott had set fifteen European light aircraft records in thirty-six hours; and she later added to her growing list of accomplishments two more around-the-world exploits, most notably an especially punishing research flight over the North Pole. Scott, who had obtained her pilot's license prior to her driver's license because she suffered from an apparently irrational fear of driving was—in a cruel twist of fate—forced to retire prematurely from flying after being severely injured in an auto accident. Before doing so, however, she set a number of other women's long-distance flight records that included a transatlantic crossing in the "top of the towers race" from London's Post Office Tower to New York City's Empire State Building, and the England-to-Australia air race, both in 1969.



38. DR. SALLY RIDE, 1983

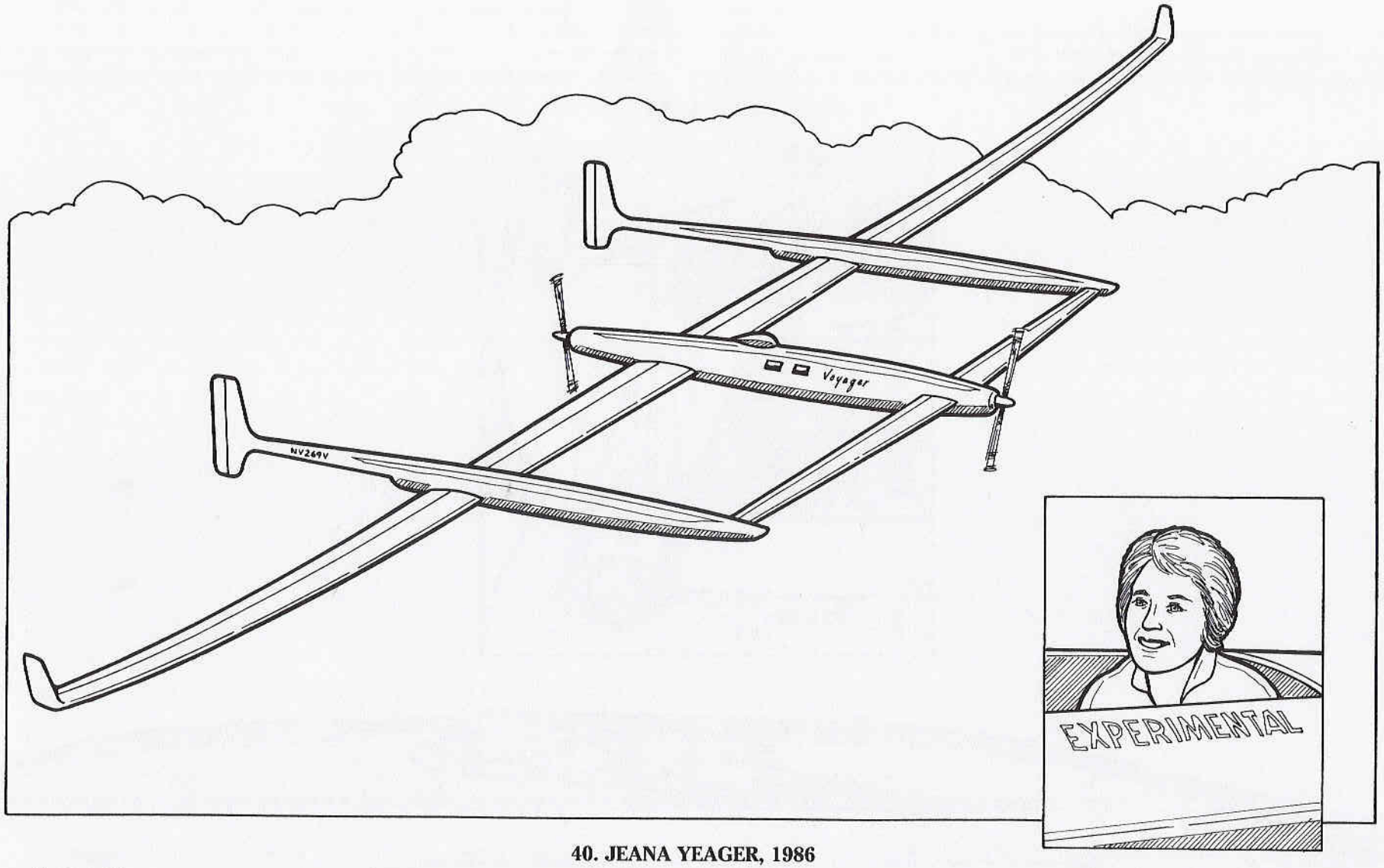
Astrophysicist* Dr. Sally Ride blasted into aviation history on June 18, 1983 aboard the space-shuttle rocket, becoming the first American woman to enter space and orbit the earth. She was a member of the initial team of six American female astronauts selected for the space-shuttle program. On her 1983 flight aboard the shuttle Challenger (left), Sally was responsible for testing the fifty-foot-long remote manipulator arm that was extended from the shuttle's open cargo bay. This multi-jointed robot arm, also known as the Remote Manipulator System (RMS), is used to launch and retrieve satellites and other spacecraft from the shuttle. Dr. Ride made a second space flight on the Challenger in 1984 before retiring from NASA in 1987. Thereafter, she pursued an academic career, as well as her own personal mission as an advocate for improved science education.

*Astrophysics is the branch of astronomy dealing with the physical and chemical nature of the universe.



39. LYNN RIPPLEMEYER, 1984

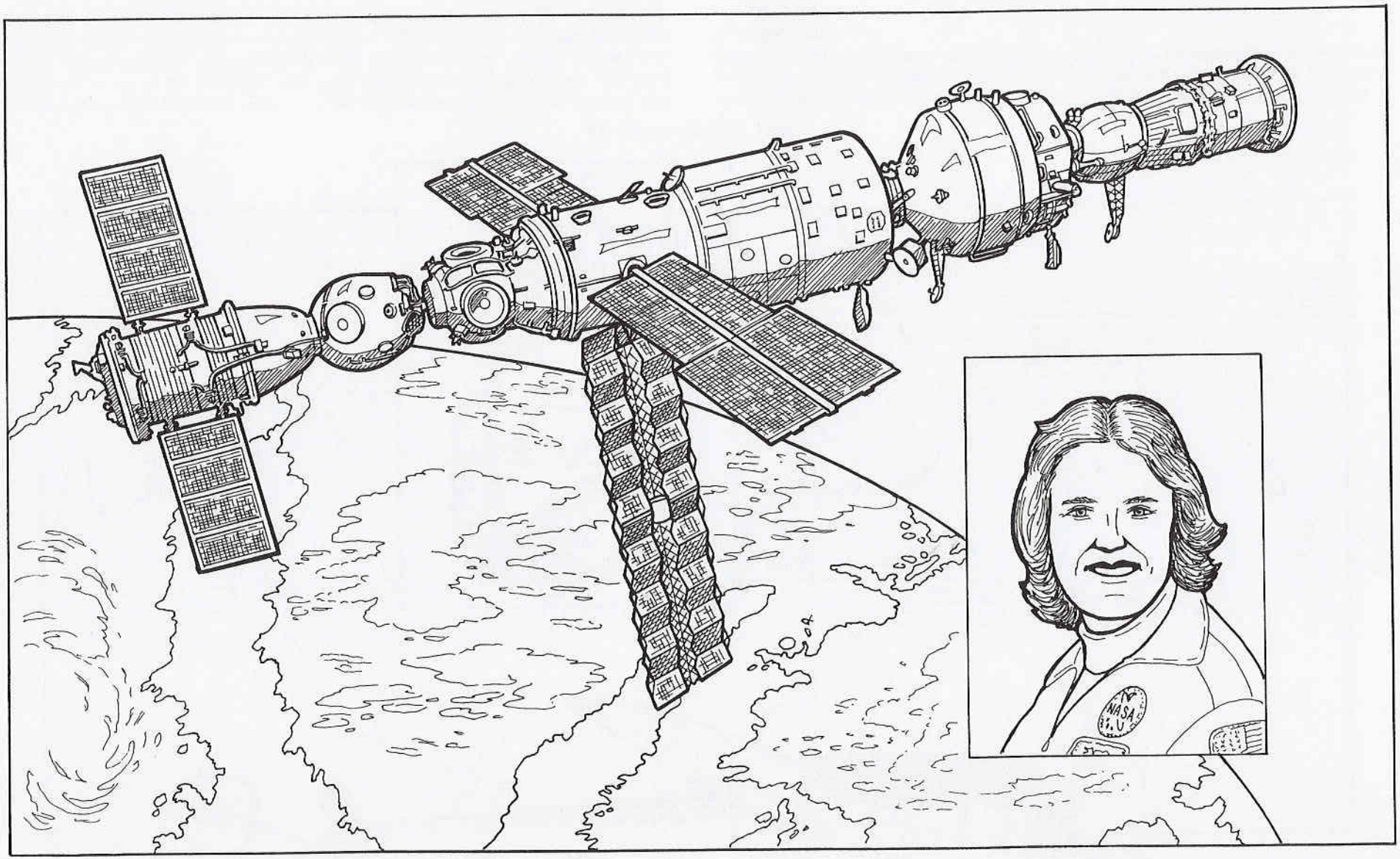
By the mid-1970s a number of female pilots were regularly flying commercial jet airliners. In 1984, Lynn Ripplemeyer became the first woman to serve as captain on a 747 jumbo jet, the world's largest airliner. The Boeing 747 pictured above can carry over 400 passengers while cruising at 600 mph. It is a massive aircraft, weighing in fully loaded at 710,000 pounds. It is 231 feet long and has a wingspan of 196 feet. To lift this immense airliner, the 747 is powered by four turbofan jet engines rated at 58,000 pounds of thrust each. It has been in service with airlines around the world since 1970.



40. JEANA YEAGER, 1986

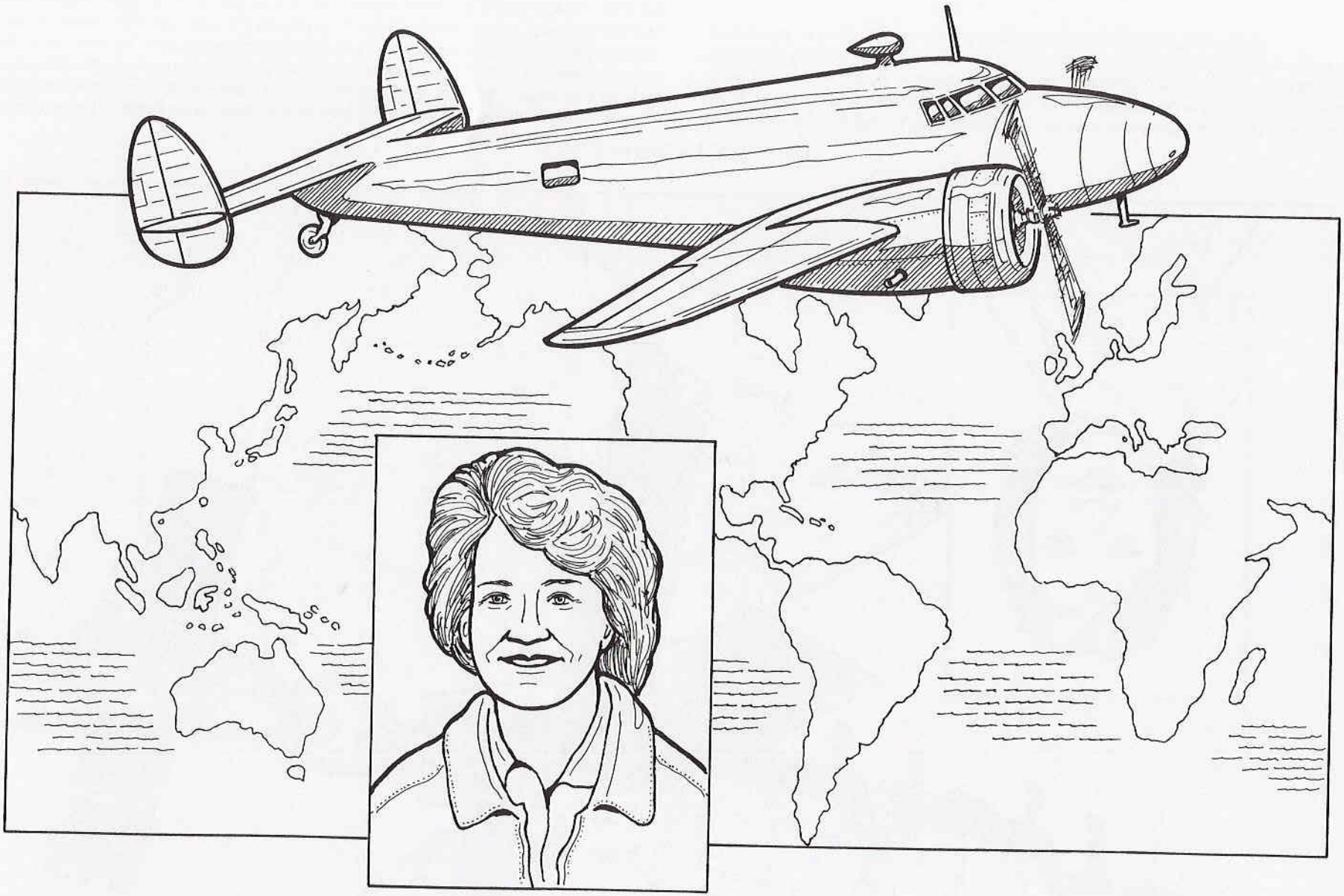
A remarkable achievement in aviation history occurred in 1986 with the nonstop, around-the-world flight of the Voyager (above), without refueling. On board were pilot Dick Rutan, with copilot and partner Jeana Yeager. The Voyager was a custom-built ultra-light aircraft specifically designed to fly for very long periods by utilizing most of the plane's hollow interior for gasoline storage. It was the creation of Burt Rutan, a renowned designer of unique and advanced-concept small aircraft, with collaboration from his brother Dick Rutan, an ex-fighter pilot, and Yeager. Jeana's credentials included a background in engineering design, some ten years' flying experience, and several world records in Rutan planes.

The odd-looking Voyager was constructed from composite resin materials for an empty weight of just 1,858 pounds—less than an automobile. Propellers at the front and back of the fuselage powered the plane. Carrying more than 1,400 gallons of fuel at takeoff made the craft unstable, especially in bad weather. In addition, Jeana and Dick were confined to the tiny four-foot by seven-foot cockpit area for the entire flight, a claustrophobic *nine days*. The plane took off on December 14, 1986 from Edwards Air Force Base, and returned for a final landing on December 23—not without considerable mechanical difficulties in between. Despite the overwhelming odds facing the craft and crew, the Voyager successfully circled the earth and covered a distance of 24,894 miles.



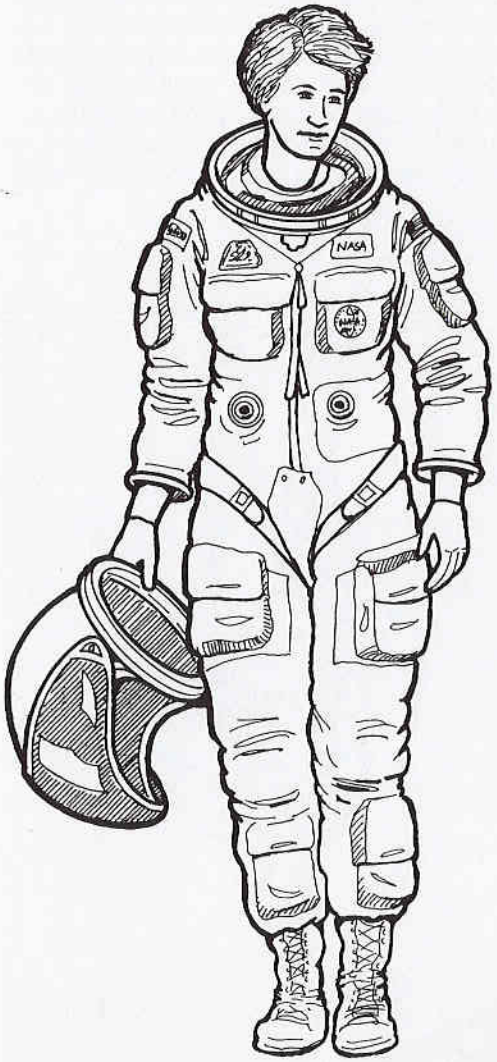
41. SHANNON LUCID, 1996

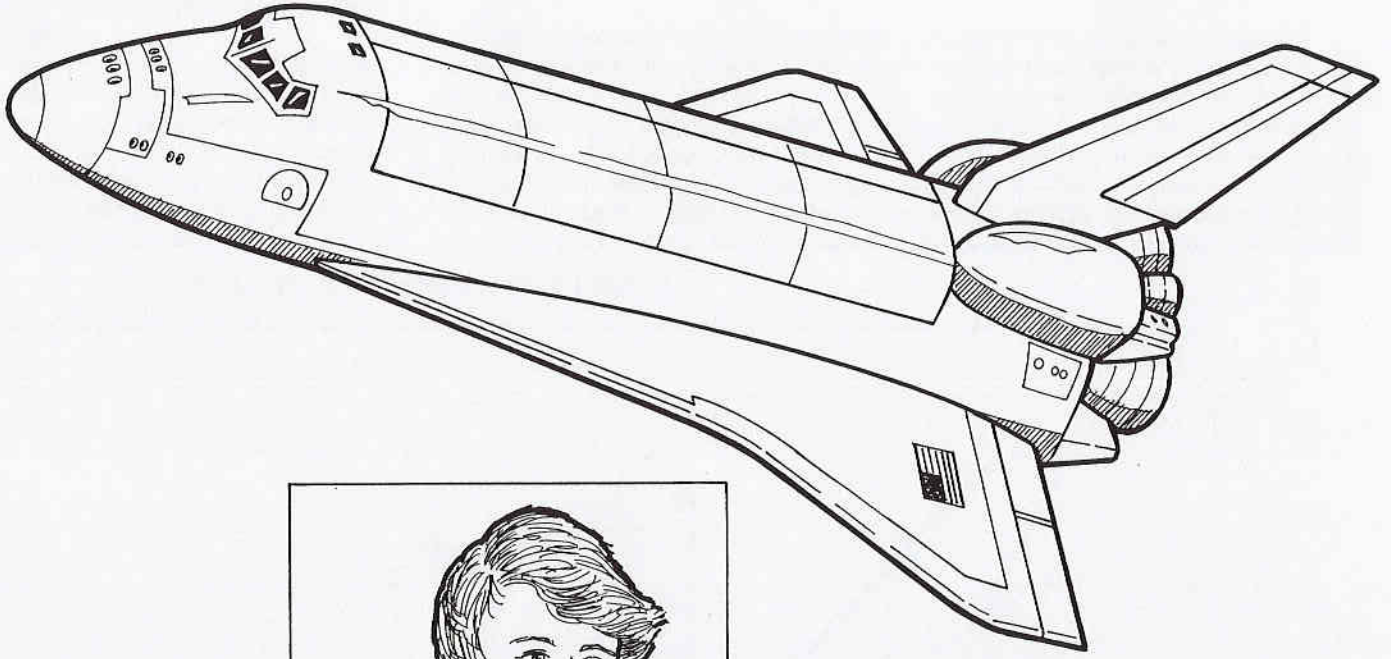
Astronaut Dr. Shannon Lucid holds the international space-flight record for American astronauts—male or female—with an amazing 223 days in earth's orbit. She became a NASA astronaut in 1978, and has flown as a mission specialist on the space shuttles Discovery, Atlantis, and Columbia a total of five times. Most of her space flight hours, however, were logged in 1996 during her duty as a Board Engineer 2 on the Russian space station MIR (above), where she performed many physical science and life science experiments. Accompanied by two Russian cosmonauts, Dr. Lucid spent a total of 188 days in orbit on the modular space platform, travelling a total of 75.2 million miles. Dr. Lucid received the Congressional Space Medal of Honor from President Clinton, and the Order of Friendship Medal—the highest award that can be presented to a non-citizen—from then Russian president Boris Yeltsin.



42. LINDA FINCH, 1997

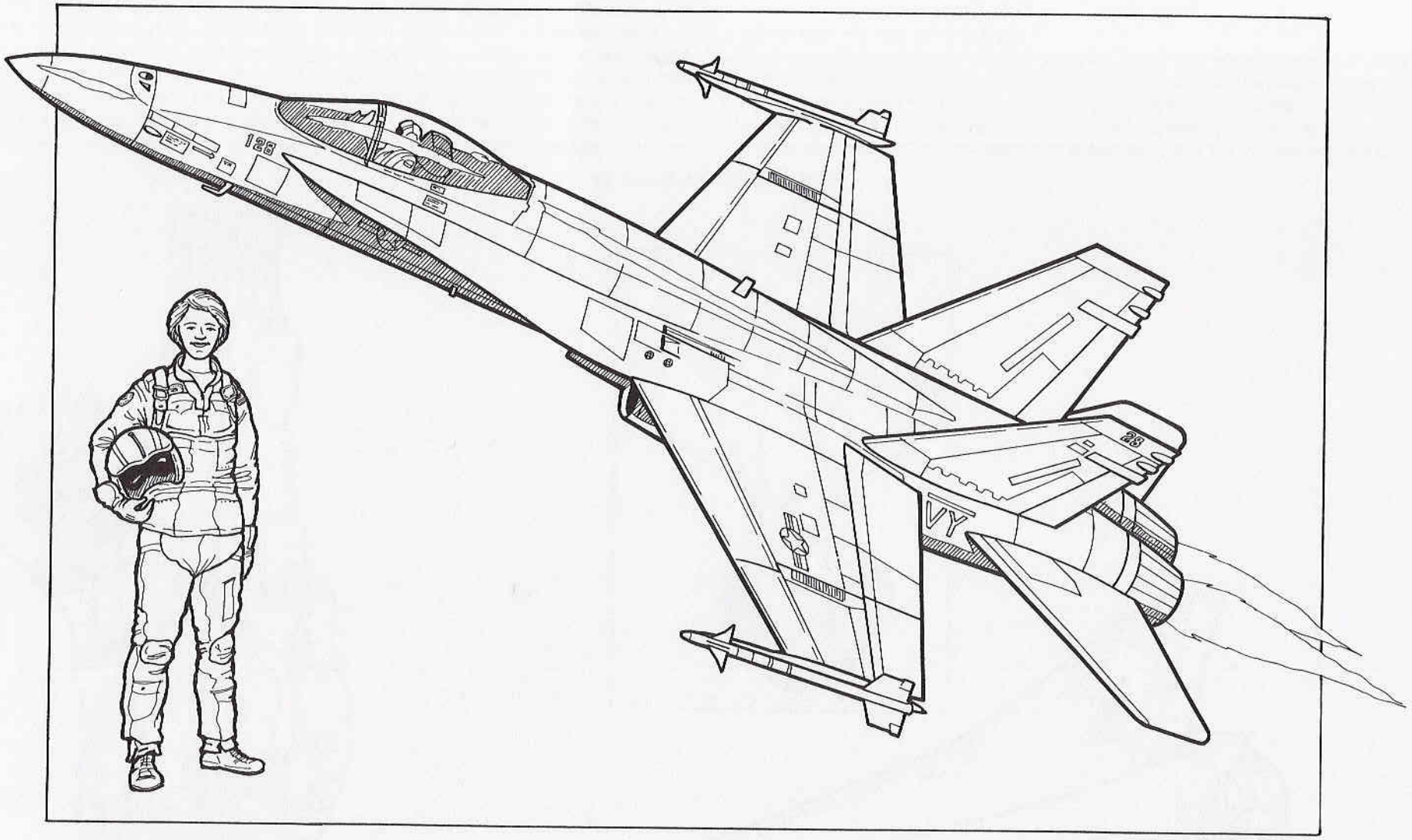
Dr. Linda Finch is an experienced pilot, physician, and aviation historian. In 1997, she set out to recreate and complete the 1937 around-the-world flight plan of famed aviatrix Amelia Earhart. With twenty years of experience with historic aircraft and over 8,500 hours of flying time in a wide variety of planes, Dr. Finch began her flight on March 17, 1997—the sixtieth anniversary of Amelia's attempt—in a completely restored 1953 Lockheed Electra 10E (above). Following Earhart's route, Linda completed her long-distance air journey on May 28. Unlike her predecessor, Dr. Finch was able to rely on global positioning satellites (GPS) and other advanced electronic gear for navigation.





43. EILEEN COLLINS, 1999

Another milestone in women's aviation occurred in 1999 when American astronaut Eileen Collins became the first female commander of a space-shuttle mission. Collins grew up in Elmira, New York, and attended Syracuse University. An Air Force ROTC student, she entered pilot training upon graduation. During her air force duty she served as an instructor pilot in the T-38 jet trainer, and as a pilot/commander of the huge four-engined C-141 StarLifter jet transport. Collins amassed more than 5,000 hours of flying time in thirty different aircraft, and eventually rose to the rank of air force colonel. She began her NASA career as a test pilot in 1991, and became the first woman pilot of a space-shuttle in 1995, piloting yet another in 1997. In July, 1999, she again made history as the first woman to be assigned commander of a shuttle—the STS-84 Columbia (above). Colonel Collins attributes her inspiration for a career in aviation and space flight to the WASPs of World War II, and the many other courageous female aviators who preceded her.



44. FEMALE COMBAT PILOTS, 1990s

During the 1980s, female military aviators began flying high performance aircraft including four-engined bombers and transports, trainers and fighters, and helicopters. The capabilities of these women were well-proven during their service tours, yet they were not permitted to fly in actual combat situations. However, by the 1990s, changing attitudes toward women's roles and rights within the military and our modern culture in general finally took hold, so that decade could witness the first women flyers actually assigned to combat duty positions. Women in the military now regularly fly the fastest jet fighters, bombers, and helicopter gunships.

Pictured above is a female navy aviator with her aircraft, a McDonnell Douglas F/A-18 Hornet jet fighter and attack plane. The Hornet is one of the most combat capable and highly maneuverable fighters in the world. Brought into service in 1983, the F/A-18 is equipped with two General Electric turbofan engines each developing 16,000 pounds of thrust. With these powerful engines the Hornet has a top speed of 1,200 mph. It is used as both an air superiority fighter and an attack aircraft (light bomber). For its fighter role, the Hornet is armed with a 20-mm cannon, two short-range heat-seeking missiles, and two medium-range radar-guided missiles. For its attack role, the F/A-18 can carry up to 17,000 pounds of bombs and air-to-surface missiles.